



TOWN OF ARLINGTON
REDEVELOPMENT BOARD

Application for Special Permit In Accordance with Environmental Design
Review Procedures (Section 3.4 of the Zoning Bylaw)

Docket No. _____

1. Property Address 190 & 192-200 Massachusetts Ave
Name of Record Owner(s) 190-200 Massachusetts Ave, LLC Phone 781-654-6306
Address of Owner 455 Massachusetts Ave, Ste 1, Arlington, MA 02474
Street City, State, Zip
2. Name of Applicant(s) (if different than above) Same as above
Address _____ Phone _____
Status Relative to Property (occupant, purchaser, etc.) _____
3. Location of Property Map 6, Block 3, Lots 1A and 1B
Assessor's Block Plan, Block, Lot No.
4. Deed recorded in the Registry of deeds, Book _____, Page _____;
-or- registered in Land Registration Office, Cert. No. 3413N, in Book 1362, Page 16.
1376 27
5. Present Use of Property (include # of dwelling units, if any) Retail, Service, Restaurant
6. Proposed Use of Property (include # of dwelling units, if any) Mixed-Use
24 Apartment Units & Retail or Restaurant
7. Permit applied for in accordance with 3.4 Environmental Design Review
the following Zoning Bylaw section(s) 5.5.2 Dimensional and Density Regulations
SP (Mixed-Use <=20,000SF)
section(s) title(s)
8. Please attach a statement that describes your project and provide any additional information that may aid the ARB in understanding the permits you request. Include any reasons that you feel you should be granted the requested permission.
See Attached

(In the statement below, strike out the words that do not apply)

The applicant states that 192-200 Massachusetts Ave, LLC is the owner -or- occupant -or- purchaser under agreement of the property in Arlington located at 190 & 192-200 Massachusetts Ave which is the subject of this application; and that unfavorable action -or- no unfavorable action has been taken by the Zoning Board of Appeals on a similar application regarding this property within the last two years. The applicant expressly agrees to comply with any and all conditions and qualifications imposed upon this permission, either by the Zoning Bylaw or by the Redevelopment Board, should the permit be granted.

Signature of Applicant(s)

Address Phone



Town of Arlington Redevelopment Board
Application for Special Permit in accordance with
Environmental Design Review (Section 3.4)

Required Submittals Checklist

Two full sets of materials and one electronic copy are required. A model may be requested. Review the ARB's Rules and Regulations, which can be found at arlingtonma.gov/arb, for the full list of required submittals.

- X Dimensional and Parking Information Form (see attached)
- X Site plan of proposal
- N/A Model, if required
- X Drawing of existing conditions
- X Drawing of proposed structure
- X Proposed landscaping. May be incorporated into site plan
- X Photographs
- X Impact statement
- N/A Application and plans for sign permits
- X Stormwater management plan (for stormwater management during construction for projects with new construction)

FOR OFFICE USE ONLY

_____	Special Permit Granted	Date: _____
_____	Received evidence of filing with Registry of Deeds	Date: _____
_____	Notified Building Inspector of Special Permit filing	Date: _____

TOWN OF ARLINGTON REDEVELOPMENT BOARD

Petition for Special Permit under Environmental Design Review (see Section 3.4 of the Arlington Zoning Bylaw for Applicability)

For projects subject to Environmental Design Review, (see Section 3.4), please submit a statement that completely describes your proposal, and addresses each of the following standards.

1. **Preservation of Landscape.** The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soil removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.
2. **Relation of Buildings to Environment.** Proposed development shall be related harmoniously to the terrain and to the use, scale, and architecture of existing buildings in the vicinity that have functional or visual relationship to the proposed buildings. The Arlington Redevelopment Board may require a modification in massing to reduce the effect of shadows on abutting property in an R0, R1 or R2 district or on public open space.
3. **Open Space.** All open space (landscaped and usable) shall be so designed as to add to the visual amenities of the vicinity by maximizing its visibility for persons passing the site or overlooking it from nearby properties. The location and configuration of usable open space shall be so designed as to encourage social interaction, maximize its utility, and facilitate maintenance.
4. **Circulation.** With respect to vehicular, pedestrian and bicycle circulation, including entrances, ramps, walkways, drives, and parking, special attention shall be given to location and number of access points to the public streets (especially in relation to existing traffic controls and mass transit facilities), width of interior drives and access points, general interior circulation, separation of pedestrian and vehicular traffic, access to community facilities, and arrangement of vehicle parking and bicycle parking areas, including bicycle parking spaces required by Section 8.13 that are safe and convenient and, insofar as practicable, do not detract from the use and enjoyment of proposed buildings and structures and the neighboring properties.
5. **Surface Water Drainage.** Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties or the public storm drainage system. Available Best Management Practices for the site should be employed, and include site planning to minimize impervious surface and reduce clearing and re-grading. Best Management Practices may include erosion control and storm water treatment by means of swales, filters, plantings, roof gardens, native vegetation, and leaching catch basins. Storm water should be treated at least minimally on the development site; that which cannot be handled on site shall be removed from all roofs, canopies, paved and pooling areas and carried away in an underground drainage system. Surface water in all paved areas shall be collected at intervals so that it will not obstruct the flow of vehicular or pedestrian traffic, and will not create puddles in the paved areas.

In accordance with Section 3.3.4, the Board may require from any applicant, after consultation with the Director of Public Works, security satisfactory to the Board to insure the maintenance of all storm water facilities such as catch basins, leaching catch basins, detention basins, swales, etc. within the site. The Board may use funds provided by such security to conduct maintenance that the applicant fails to do. The Board may adjust in its sole discretion the amount and type of financial security such that it is satisfied that the amount is sufficient to provide for the future maintenance needs.

6. **Utility Service.** Electric, telephone, cable TV and other such lines and equipment shall be underground. The proposed method of sanitary sewage disposal and solid waste disposal from all buildings shall be indicated.
7. **Advertising Features.** The size, location, design, color, texture, lighting and materials of all permanent signs and outdoor advertising structures or features shall not detract from the use and enjoyment of proposed buildings and structures and the surrounding properties. Advertising features are subject to the provisions of Section 6.2 of the Zoning Bylaw.

8. Special Features. Exposed storage areas, exposed machinery installations, service areas, truck loading areas, utility buildings and structures, and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall reasonably be required to prevent their being incongruous with the existing or contemplated environment and the surrounding properties.
9. Safety. With respect to personal safety, all open and enclosed spaces shall be designed to facilitate building evacuation and maximize accessibility by fire, police, and other emergency personnel and equipment. Insofar as practicable, all exterior spaces and interior public and semi-public spaces shall be so designed as to minimize the fear and probability of personal harm or injury by increasing the potential surveillance by neighboring residents and passersby of any accident or attempted criminal act.
10. Heritage. With respect to Arlington's heritage, removal or disruption of historic, traditional or significant uses, structures, or architectural elements shall be minimized insofar as practicable, whether these exist on the site or on adjacent properties.
11. Microclimate. With respect to the localized climatic characteristics of a given area, any development which proposes new structures, new hard-surface ground coverage, or the installation of machinery which emits heat, vapor, or fumes, shall endeavor to minimize, insofar as practicable, any adverse impact on light, air, and water resources, or on noise and temperature levels of the immediate environment.
12. Sustainable Building and Site Design. Projects are encouraged to incorporate best practices related to sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. Applicants must submit a current Green Building Council Leadership in Energy and Environmental Design (LEED) checklist, appropriate to the type of development, annotated with narrative description that indicates how the LEED performance objectives will be incorporated into the project. [LEED checklists can be found at <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220b>]

In addition, projects subject to Environmental Design Review must address and meet the following Special Permit Criteria (see Section 3.3.3 of the Zoning Bylaw):

1. The use requested is listed as a special permit in the use regulations for the applicable district or is so designated elsewhere in this Bylaw.
2. The requested use is essential or desirable to the public convenience or welfare.
3. The requested use will not create undue traffic congestion or unduly impair pedestrian safety.
4. The requested use will not overload any public water, drainage or sewer system or any other municipal system to such an extent that the requested use or any developed use in the immediate area or in any other area of the Town will be unduly subjected to hazards affecting health, safety or the general welfare.
5. Any special regulations for the use as may be provided in this Bylaw are fulfilled.
6. The requested use will not impair the integrity or character of the district or adjoining districts, nor be detrimental to the health, morals, or welfare.
7. The requested use will not, by its addition to a neighborhood, cause an excess of the particular use that could be detrimental to the character of said neighborhood.

TOWN OF ARLINGTON

Dimensional and Parking Information
for Application to
The Arlington Redevelopment Board

Docket No. _____

Property Location 190 & 192-200 Massachusetts Ave

Zoning District B3

Owner: 192-200 Massachusetts Ave, LLC

Address: 455 Massachusetts Ave, Arlington, MA

Present Use/Occupancy: No. of Dwelling Units:

Retail, Service, Restaurant

Uses and their gross square feet:

1-Story 9,916 GSF

Proposed Use/Occupancy: No. of Dwelling Units:

Mixed-Use, 24 Apartment Units & Retail/Restaurant

Uses and their gross square feet:

4-Story Mixed-Use, 35,759 GSF

	Present Conditions	Proposed Conditions	Min. or Max. Required by Zoning for Proposed Use
Lot Size	11,134 SF	11,134 SF	min. ----
Frontage	102.1 FT	102.1 FT	min. 50 FT
Floor Area Ratio	0.9	3.2	max. 1.5
Lot Coverage (%), where applicable	N/A	N/A	max. ----
Lot Area per Dwelling Unit (square feet)	N/A	464 SF	min. ----
Front Yard Depth (feet)	0 FT	0 FT	min. 0 FT
Side Yard Width (feet) right side	0.6 FT	7.5 FT	min. 0 FT
left side	----	----	min. ----
Rear Yard Depth (feet)	----	----	min. (H+L)/6
Height	----	----	min. ----
Stories	1-STORY	4-STORY	stories 5-STORY
Feet	20 FT +/-	<50 FT	feet 60 FT
Open Space (% of G.F.A.)	----	----	min. ----
Landscaped (square feet)	97 SF/11,134 SF (lot area) → 0.9%	6.6 %	(s.f.) 10% 1,867 SF ← 1,232 SF/18,670 SF (Res. Floor Area)
Usable (square feet)	0 %	11.5 %	(s.f.) 20% 3,734 SF ← 18,670 SF (Res. Floor Area) X 0.10 = 1,867 SF
Parking Spaces (No.)	None	14	min. 29.4 ← 18,670 SF (Res. Floor Area) X 0.20 = 3,734 SF
Parking Area Setbacks (feet), where applicable	0 FT	N/A	min. N/A ← 2,140 (deck space)/ 18,670 SF (Res. Floor Area)
Loading Spaces (No.)	N/A	N/A	min. N/A
Type of Construction	NEW CONSTRUCTION		
Distance to Nearest Building	12.0 FT	19.2 FT	min.



June 7th, 2021 Updated Submission Comments

190 & 190-200 Massachusetts Avenue Arlington, MA

Overall Project Change:

The building has gone from 5 stories down to 4 stories and the overall unit count now is 24 units. After hearing all the feedback from the ARB as well as the community we feel this new layout is much less impactful on the neighborhood. We no longer will be requesting relief from the rear height buffer. Knowing that affordable housing is important to the Town we are still going to maintain our 20% affordable rate, which is what we were offering when we had 37 units. We are also decreasing our parking down to 14 total as well as incorporating one more electric changing station.

Net Zero:

The plan for this building is similar to 882-892 Mass Ave where the units will utilize electric. The roof will be "solar ready" and able to handle those loads structurally. We support Arlington's agenda of net zero and have proactively worked with Ken Pruitt, the Town Energy Manager on 882-892 Mass Ave. The building at 882-892 Mass Ave is serving as a case study on how this kind of design can be done. We plan on executing the same way for this project.

Commercial Space:

We have done our best to reshape and reorganize the commercial space to make it more functional and usable. We are extending/squaring off the space on Lake Street, which adds to the appearance of the building on that side. We also moved the entrance to the residential units to the former bank entrance as we had to slide the parking down towards Chandler Street in order to add to the commercial space making it more robust. In this process we also included the location up through the building for ventilating a hood. We believe this size commercial space can do well at this location and hopefully whatever tenant ends up moving into it can be a staple in the building for a long time. These changes have increased the commercial space from 2,084 SF to 2,430 SF.

At the end of the day, a building is a business, and we have to make decisions with that in mind. Just like with any business if you don't ever adapt and change you go out of business. We believe this is a situation where quality over quantity is important. We also believe that this size space is what the market supports post COVID. The inquiries we have received as of late (and



prior to Covid) have been for 1000-2000+/- SF. In the roughly 20 months prior to COVID, two restaurants declared bankruptcy where the tenant owed substantial rent to the landlord. This building is not a “destination” location compared to what you might think when you see a traditional shopping plaza. The commercial space is going to largely survive off of local foot traffic/walk-in traffic. Commercial/Retail has been experiencing a slow negative trend before the pandemic this past year accelerated that trend, which is why when you drive through many different towns, not just Arlington, there are many vacant storefronts. Therefore, we think that a single user or two smaller users would benefit from local foot traffic as well as the residential units located in the building. Other local businesses would consider the residential units a benefit to their businesses.

For informational purposes I had a brokerage firm put together an update on the rental market in Arlington which shows a current rate of 17.3%. However, this doesn't include any spaces that haven't been reported as vacant, spaces that have tenants who haven't officially moved out yet that are maybe out of business, as well as tenants who aren't currently paying rent and their situation isn't necessarily clear. This structure, as proposed, with a large portion being residential will make it so the building will never be in the situation it is now, which is run down. The residential units will be able to support the commercial space if it changes over time, repair damage, or complete different buildouts over time. The way the current commercial space is structured can make it very difficult in some cases if two tenants go out of business in a row, or multiple tenants leave at one time to keep things maintained. As a landlord, in that case, you could have invested money into the build out and never gotten that back, which could be on top of still being owed money from the lease. We believe our proposal is a balanced approach that is going to create a long-lasting successful building that can help bring people to Arlington and be a building the town can find pride in.

Traffic:

Our traffic consultant from MDM is fully prepared to discuss the study he performed for this project. His overall findings, in summary, is that this new development, compared to what has historically been at this location, will derive less trips per day and be less impactful on the neighborhood. This mainly stems from the fact all the previous businesses generate a lot of in and out traffic all day long seven days a week. Fourteen parking spaces on average are going to generate a few trips a day. Every car will not be coming and going every single day. Some renters may have a car because they want one but not use it very often. We are also attaching an enlarged site plan showing all the parking in the area that is available both for a retail user as well as visitors. I would also add the entrance we are using for the parking garage has always been a curb cut. Currently, there are 3 spaces behind the bank building as well as 2 dumpsters. We are adding 11 more cars that will not be in and out all day long multiple times. Surrounding neighbors are worried about the traffic, but since we do in fact have less commercial space than what has been traditionally there over the last ten+ years, we are



eliminating many deliveries for a few businesses multiple times a day. Those deliveries would include larger trucks with back-up noises.

Underground Parking:

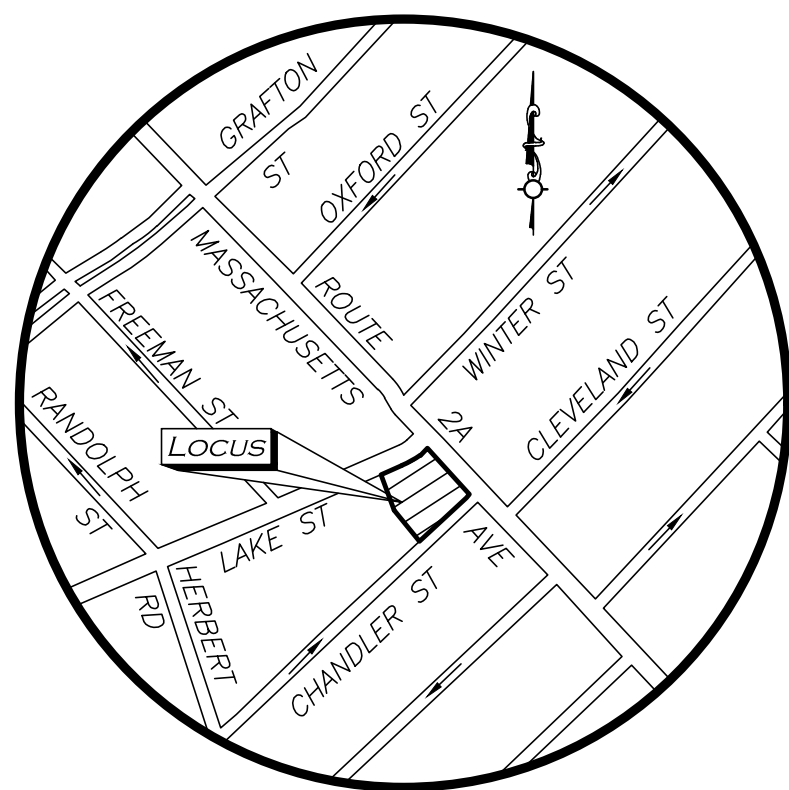
In previous iterations we had already explored underground parking prior to the submission of our application. We had a fully engineered plan done by our engineers and even with an increased grade to the upper limits we found that the real issue is the building does not have a large enough footprint to support adequate parking below the building. Therefore, the fact that we are only able to get 5 spaces combined with the economic infeasibility for those five, we cannot move forward with underground parking.

Exterior Design:

Best efforts combined with feedback led us to make changes to the exterior of the building to tie everything together and create more flow between the commercial and residential portion of the building. A small change to note is that by moving the interior staircase exit out onto Lake Street, more green space was gained in the rear of the building. The building seems to tie together with Capitol Square along with improvements along both Chandler and Lake Street. Specifically, on Lake Street where the commercial space has expanded down the street around the corner creates more life to that side of the building.

Second Floor Office Space:

We explored the option of office space on the second floor with our design team as well as our code consultants. The main insurmountable issue was we most likely would have to add another elevator and a third staircase in order to keep access separate as there is a security and peaceful enjoyment of residential tenants to consider as a priority. In addition, those alterations would disrupt the current commercial space as laid out. Due to those reasons, we find that option to not be economically viable or desirable.



LOCUS MAP
NOT TO SCALE

SITE DEVELOPMENT PLAN SET

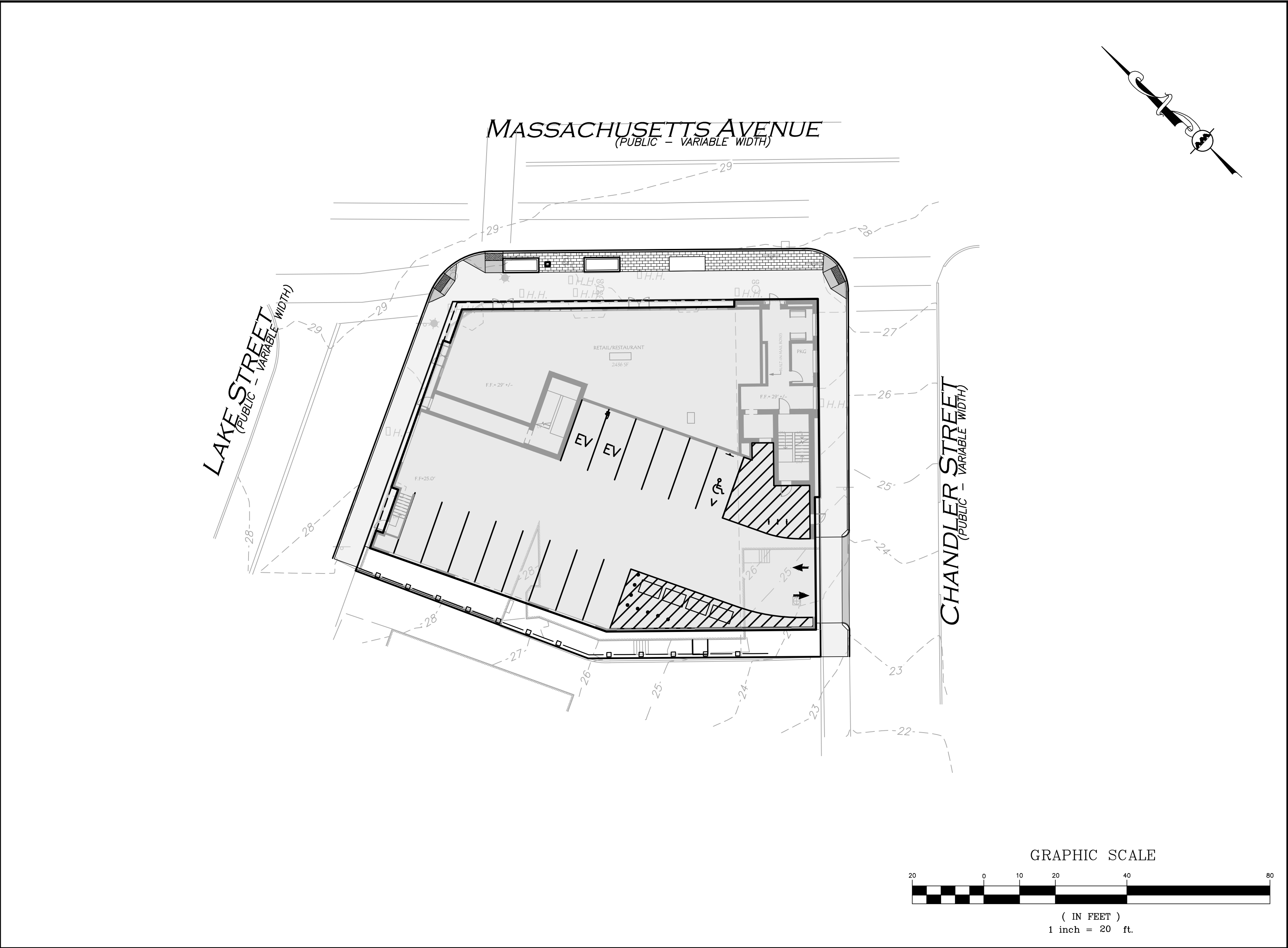
190 & 192-200 MASSACHUSETTS AVE

ARLINGTON, MA 02476

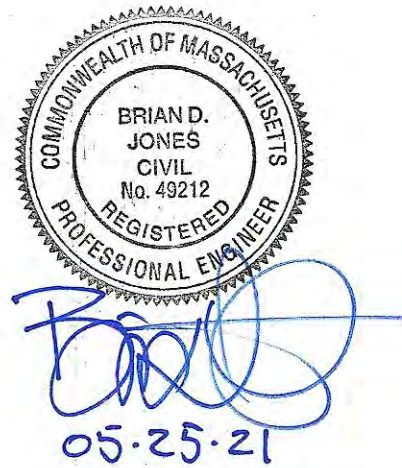
APPLICANT:
192-200 MASSACHUSETTS AVE, LLC
452 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

ARCHITECT:
MARKET SQUARE ARCHITECTS
104 CONGRESS STREET, STE 203
PORTSMOUTH, NH 03801
(603) 501-0202

**CIVIL ENGINEER, LANDSCAPE ARCHITECT &
LAND SURVEYOR:**
ALLEN & MAJOR ASSOCIATES, INC.
100 COMMERCE WAY, SUITE 5
WOBURN, MA 01801
(781) 985-6889



LIST OF DRAWINGS			
DRAWING TITLE	SHEET	ISSUED	REVISED
EXISTING CONDITIONS	V-101	10/23/2020	-
SITE PREPARATION PLAN	C-101	03/10/2021	-
LAYOUT & MATERIALS PLAN	C-102	03/10/2021	05/25/2021
GRADING & DRAINAGE PLAN	C-103	03/10/2021	05/25/2021
UTILITIES PLAN	C-104	03/10/2021	05/25/2021
DETAILS	C-501	03/10/2021	-
DETAILS	C-502	03/10/2021	-
DETAILS	C-503	03/10/2021	-
LANDSCAPE PLAN	L-101	03/10/2021	05/25/2021
LANDSCAPE DETAILS	L-501	03/10/2021	-

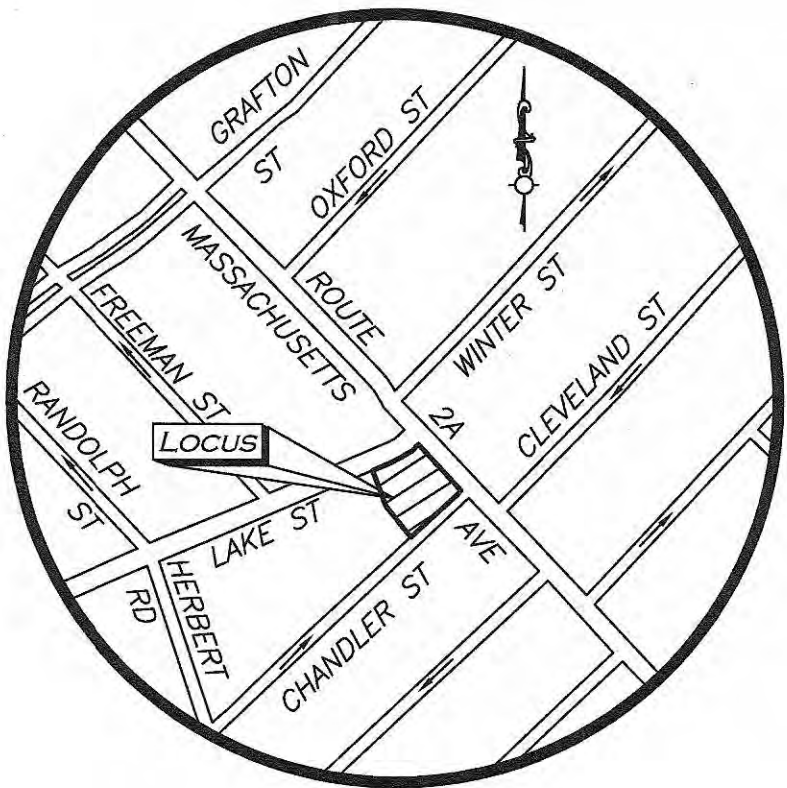


PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

PREPARED BY:

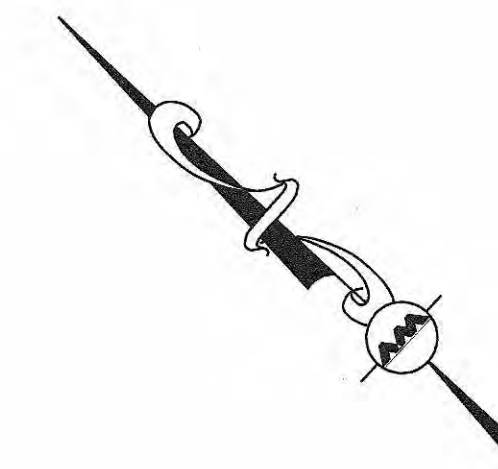
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environmental consulting ♦ landscape architecture
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TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

ISSUED FOR ARB REVIEW: MARCH 10, 2021
REVISED FOR ARB REVIEW: MAY 25, 2021



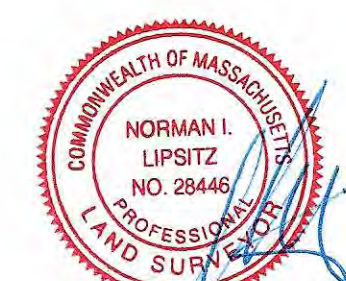
LOCUS MAP
(NOT TO SCALE)

BENCHMARK SUMMARY		
TBM #	DESCRIPTION	ELEV.
1	COTTON GIN SPINDLE SET IN UTILITY POLE	26.96
2	CHISEL SQUARE ON CONCRETE BASE	29.24

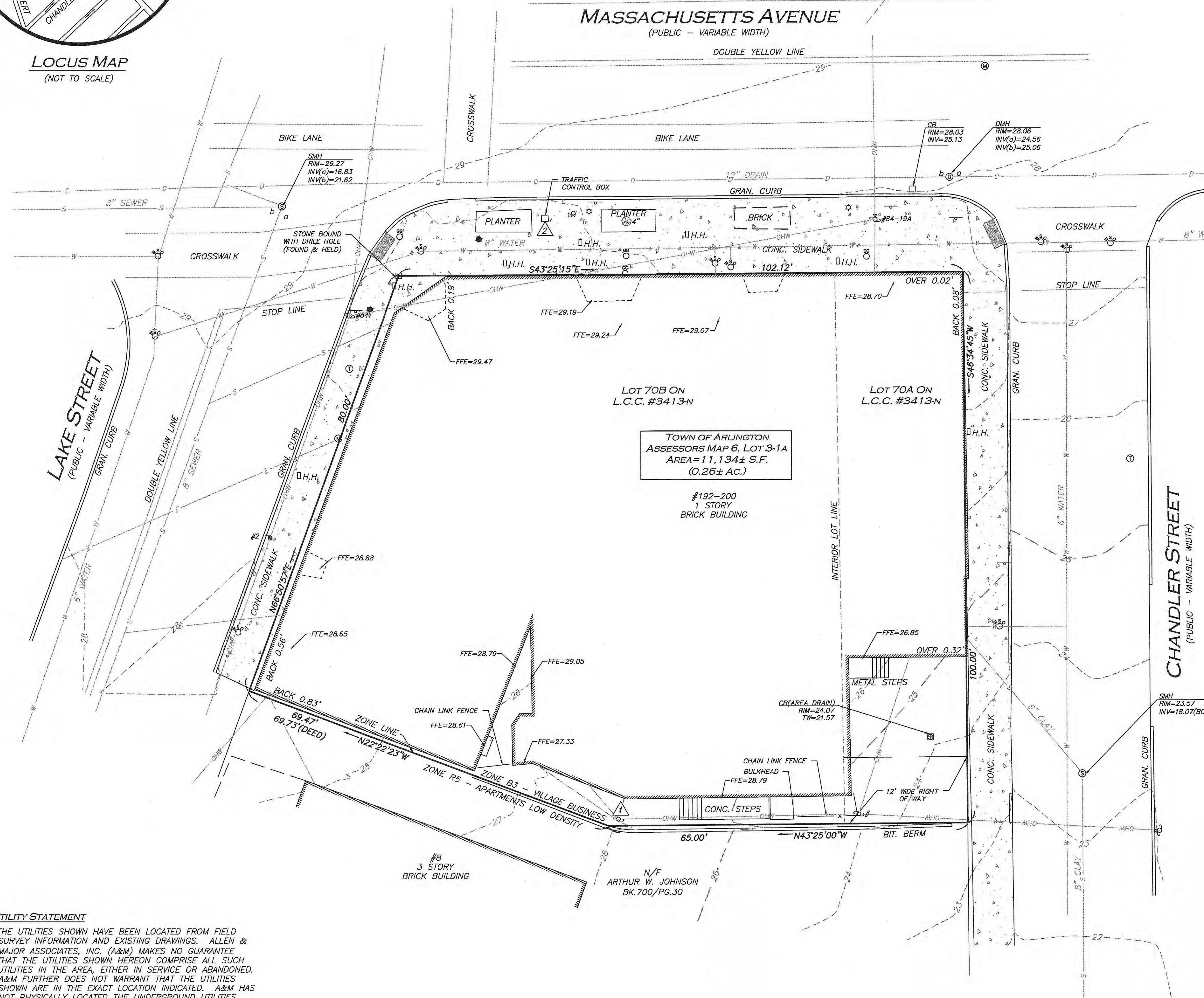


WE HEREBY CERTIFY THAT THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON AUGUST 4, 2020.

0-1 23,000
PROFESSIONAL LAND SURVEYOR FOR
ALLEN & MAJOR ASSOCIATES, INC.

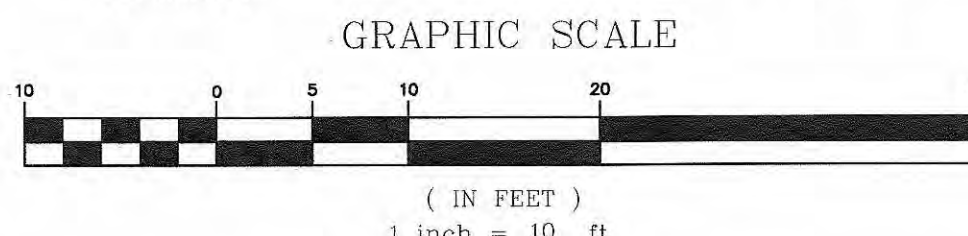


10/23/20



LEGEND	
STONE BOUND (SB)	□
DRAIN MANHOLE (DMH)	⊙
SEWER MANHOLE (SMH)	⊙
MISC. MANHOLE (MH)	⊙
TELEPHONE MANHOLE (TMH)	⊙
ROUND CATCH BASIN (RCB)	⊙
UTILITY POLE	⊙
UTILITY POLE W/LIGHT	⊙
UTILITY POLE W/RISER	⊙
WATER GATE	⊙
GAS GATE	⊙
HAND HOLE	⊙
TRAFFIC SIGNAL	⊙
LIGHT	⊙
TREE	⊙
SIGN	⊙
CONCRETE	▨
BUILDING	▨
BUILDING OVERHANG	▨
PROPERTY LINE	—
CURB	—
CHAIN LINK FENCE	—
WATER LINE	—
SEWER LINE	—
DRAIN LINE	—
GAS LINE	—
ELECTRIC LINE	—
TELEPHONE LINE	—
OVERHEAD WIRES	—
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
CONCRETE	CONC.
GRANITE	GRAN.
BOTTOM CENTER	(BC)
REINFORCED CONCRETE PIPE	RCP
POLYVINYL CHLORIDE PIPE	PVC
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.
LAND COURT	L.C.
LAND COURT CASE	L.C.C.

- LOCUS REFERENCES**
- TOWN OF ARLINGTON ASSESSORS MAP 6, LOT 3-1A
 - L.C. BOOK 1362, PAGE 16
 - L.C. BOOK 1376, PAGE 27
 - L.C.C. NO. 3413N
 - RECORD OWNER: FRAMINA L.L.C.
- PLAN REFERENCES**
- PLAN 542 OF 1986
 - PLAN 320 OF 2012
 - L.C.C. NO. 3413
- NOTES**
1. NORTH ARROW IS BASED ON MASSACHUSETTS GRID COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
 2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM MIDDLESEX (SOUTH) REGISTRY OF DEEDS IN CAMBRIDGE, MA.
 3. VERTICAL DATUM IS NAVD 88 ESTABLISHED USING RTK GPS OBSERVATION.
 4. CONTOUR INTERVAL IS ONE FOOT (1').
 5. THERE ARE NO STRIPED PARKING STALLS ON THE SUBJECT PREMISES.



N:\PROJECTS\2729-02\SURVEY\DRAWINGS\CURRENT\5-2729-02-EC.DWG

UTILITY STATEMENT
THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

REV	DATE	DESCRIPTION

APPLICANT/OWNER:
192-200 MASSACHUSETTS AVE LLC
455 MASSACHUSETTS AVENUE
SUITE 1
ARLINGTON, MA 02474

PROJECT:
190 & 192-200
MASSACHUSETTS AVENUE
ARLINGTON, MA

PROJECT NO.	2729-02	DATE:	10/22/20
SCALE:	1" = 10'	DWG. NAME:	S-2729-02-EC
DRAFTED BY:	AJR	CHECKED BY:	NIL

PREPARED BY:

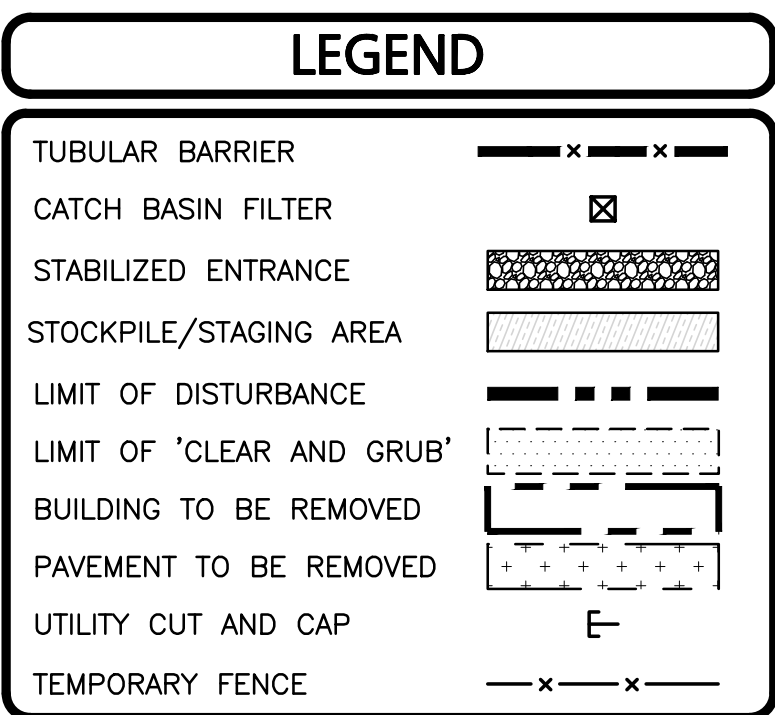
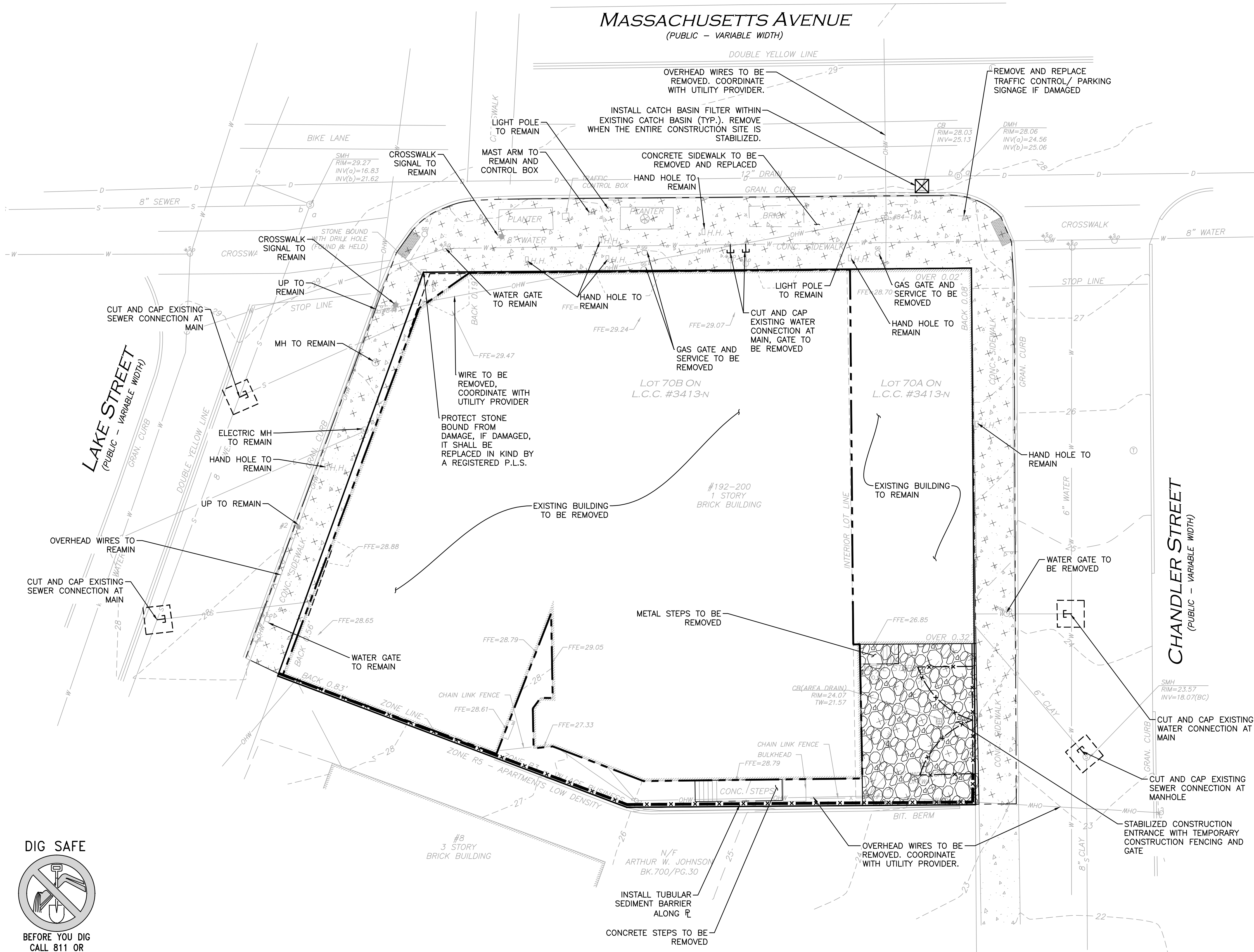
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY
WOBURN MA 01801-8501
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
EXISTING CONDITIONS	V-101

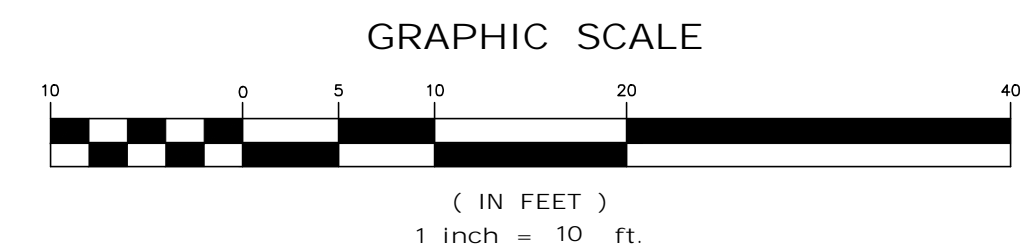
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R:\PROJECTS\2729-02\CIVIL\DRAWINGS\CURRENT\C-2729-02_SITE-PREP.DWG



SITE PREPARATION NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
3. ALTHOUGH CERTAIN ITEMS HAVE BEEN NOTED ON THIS DRAWING FOR DEMOLITION, NO ATTEMPT HAS BEEN MADE TO DELINEATE EACH AND EVERY ITEM THAT REQUIRES DEMOLITION FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NECESSARY DEMOLITION WORK TO COMPLETE THE PROJECT. ALLEN & MAJOR ASSOCIATES, INC. IS NOT RESPONSIBLE FOR SITE DEMOLITION ITEMS NOT SHOWN ON THE SURVEY, OR SPECIFICALLY NOTED. THE DEMOLITION NOTES AND ARROWS ON THIS PLAN ARE TYPICAL AND DO NOT REFLECT QUANTITY.
4. EXISTING WATER AND SEWER CONNECTIONS SHALL BE CUT AND CAPPED IN ACCORDANCE WITH THE TOWN OF ARLINGTON REQUIREMENTS.
5. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
6. ALL INSTALLED CATCH BASINS AND AREA DRAINS SHALL HAVE A FILTER INSTALLED IMMEDIATELY, AND THE FILTER SHALL BE REMOVED WHEN THE ENTIRE SITE IS STABILIZED.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
2	05/25/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW

APPLICANT/OWNER:
192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:
190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO.	2729-02	DATE:	10/23/2020
SCALE:	1" = 10'	DWG. NAME:	C2729-02
DESIGNED BY:	ARM	CHECKED BY:	BDJ

PREPARED BY:

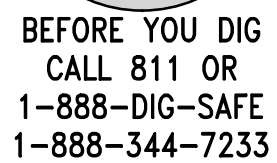
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting • landscape architecture
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TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

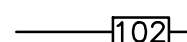
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DRAWING TITLE:	SHEET No.
SITE PREPARATION PLAN	C-101

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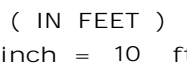


SPOT GRADE



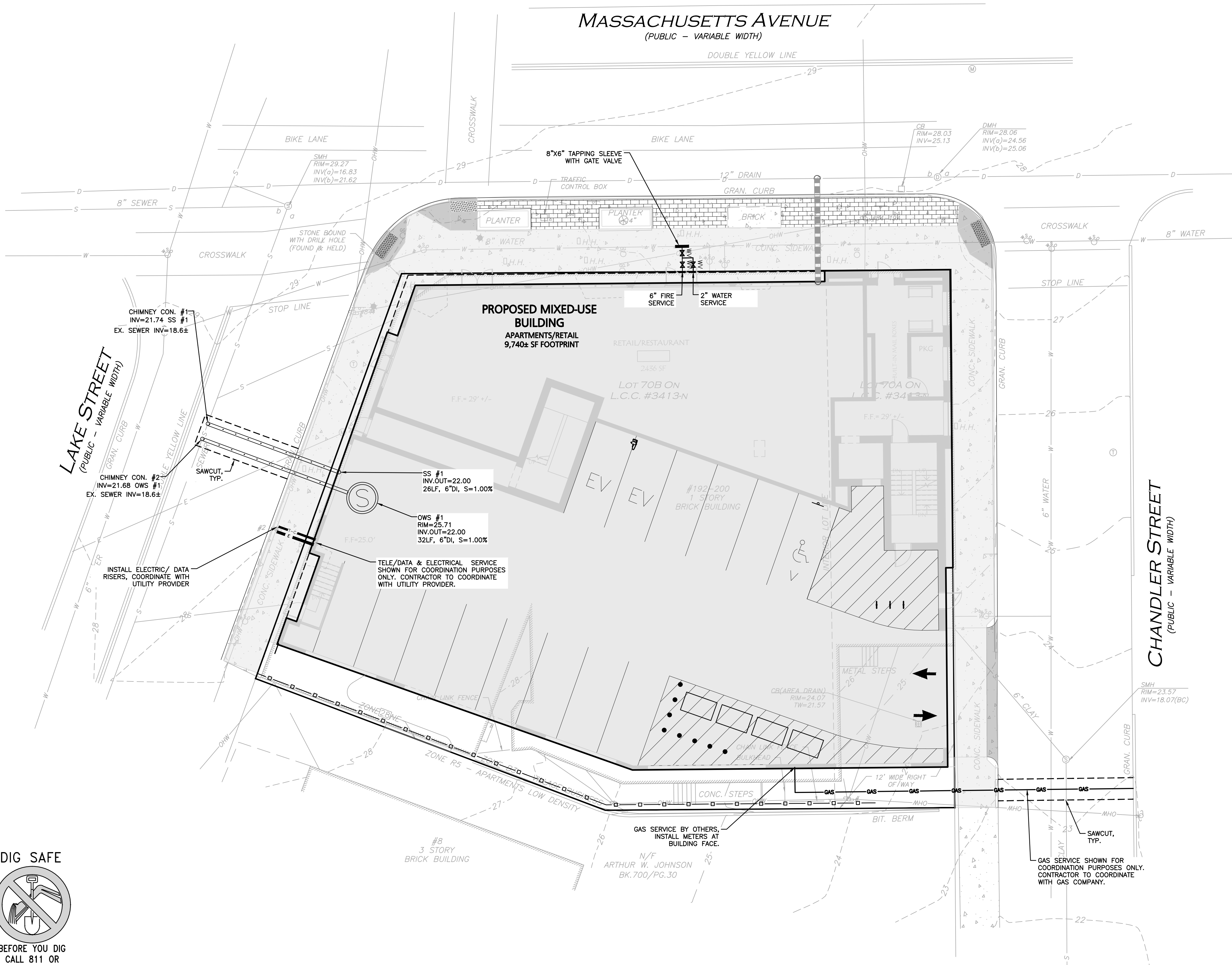
79.50 ———

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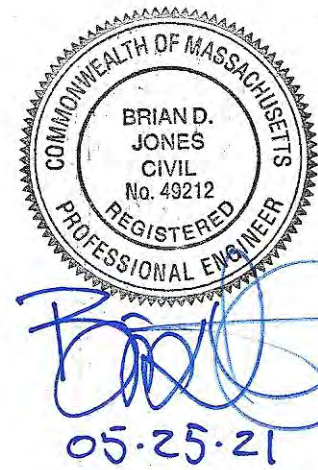
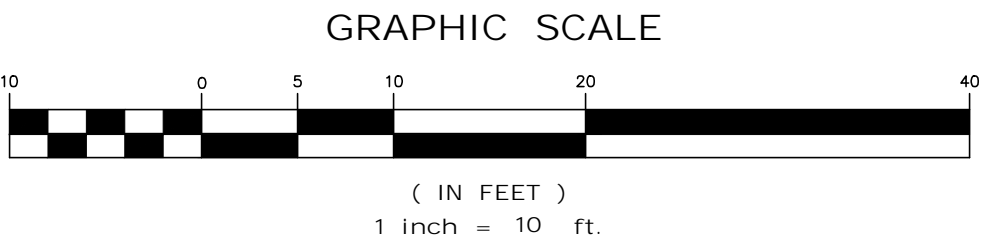
R:\PROJECTS\2729-02\CIVIL\DRAWINGS\CURRENT\C-2729-02_UTILITIES.DWG



LEGEND	
SEWER MANHOLE	⊙
SEWER CLEANOUT	⊙
SEWER VENT	⊙
SEWER LINE	—S—
WATER LINE	—W—
WATER (FIRE SERVICE)	—W-F—
WATER (DOMESTIC SERVICE)	—W-D—
WATER VALVE	WV
GAS LINE	—GAS—
GAS VALVE	GV
ELECTRICAL CONDUIT	—E—
TELE/CABLE CONDUIT	—TC—

UTILITY NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
2. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN AND SEWER LINES. WATER SERVICES SHALL BE ENCASED IN CONCRETE REGARDLESS OF CLEARANCE WHEN PASSING BELOW STORM DRAIN AND SEWER LINES. ENCASEMENT SHALL EXTEND ALONG WATER SERVICE A MINIMUM DISTANCE OF EIGHT FEET CENTERED ON THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
3. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
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ARLINGTON, MA 02476

PROJECT NO. 2729-02 DATE: 10/23/2020

SCALE: 1" = 10' DWG. NAME: C2729-02

DESIGNED BY: ARM CHECKED BY: BDJ

PREPARED BY:

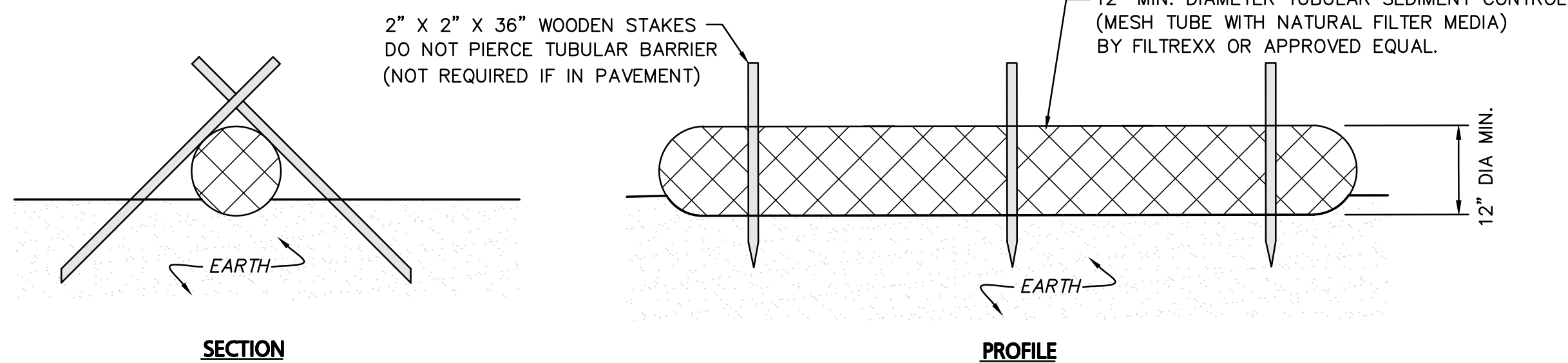


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DRAWING TITLE: UTILITIES PLAN SHEET No. C-104

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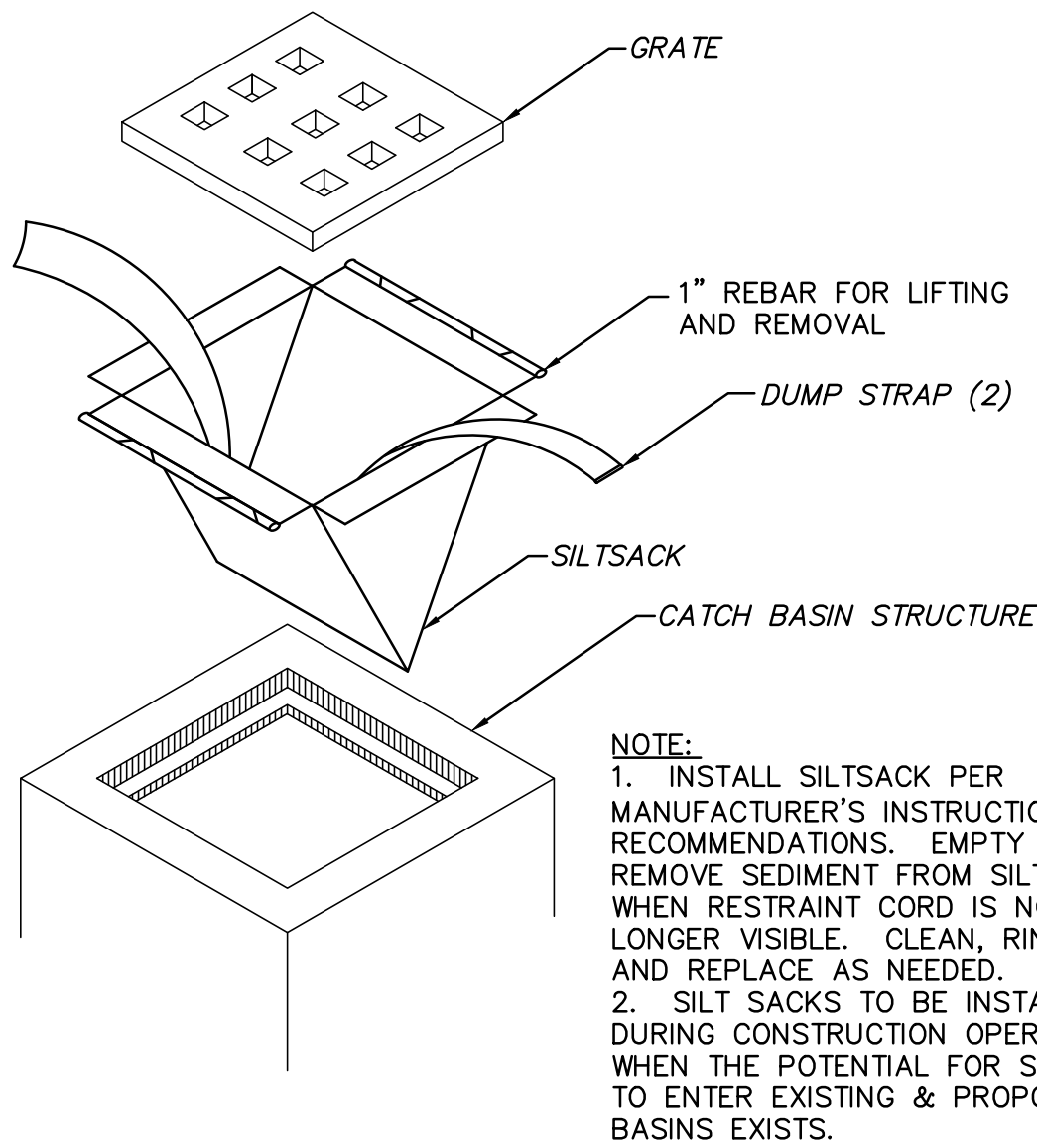
SECTION

PROFILE

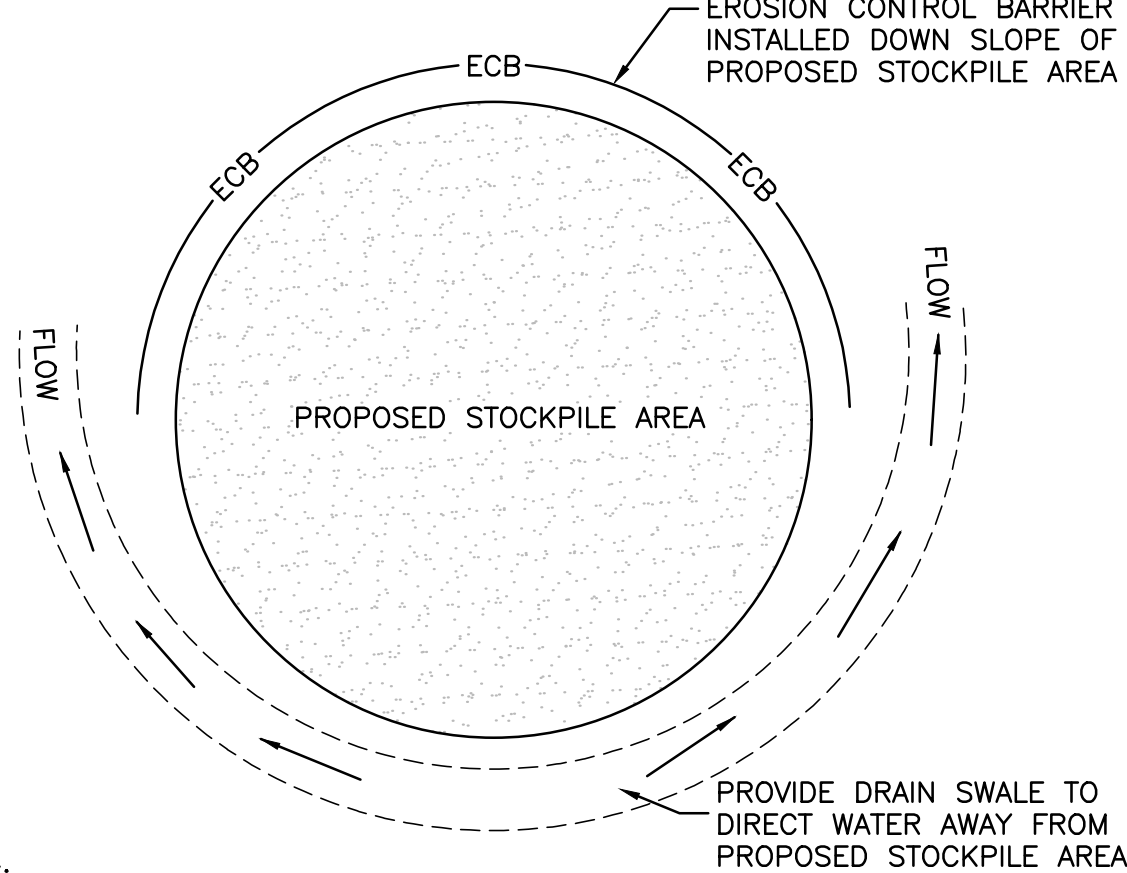
NOTES:

1. ALL MATERIALS TO MEET MANUFACTURERS SPECIFICATIONS.
2. INSTALL WOODEN STAKES IN A CRISS-CROSS PATTERN EVERY 8' ON CENTER.
3. OVERLAP TUBULAR BARRIER SEGMENTS A MINIMUM OF 12".
4. THE CONTRACTOR SHALL MAINTAIN THE TUBULAR BARRIERS IN A FUNCTIONAL CONDITION AT ALL TIMES. THE CONTROLS SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR.
5. WHERE THE TUBULAR BARRIERS REQUIRE REPAIR OR SEDIMENT REMOVAL, IT WILL BE COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST.
6. AT A MINIMUM, THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE WHEN THEY REACH 1/3 THE EXPOSED HEIGHT OF THE BARRIER.

TUBULAR SEDIMENT BARRIER
NOT TO SCALE



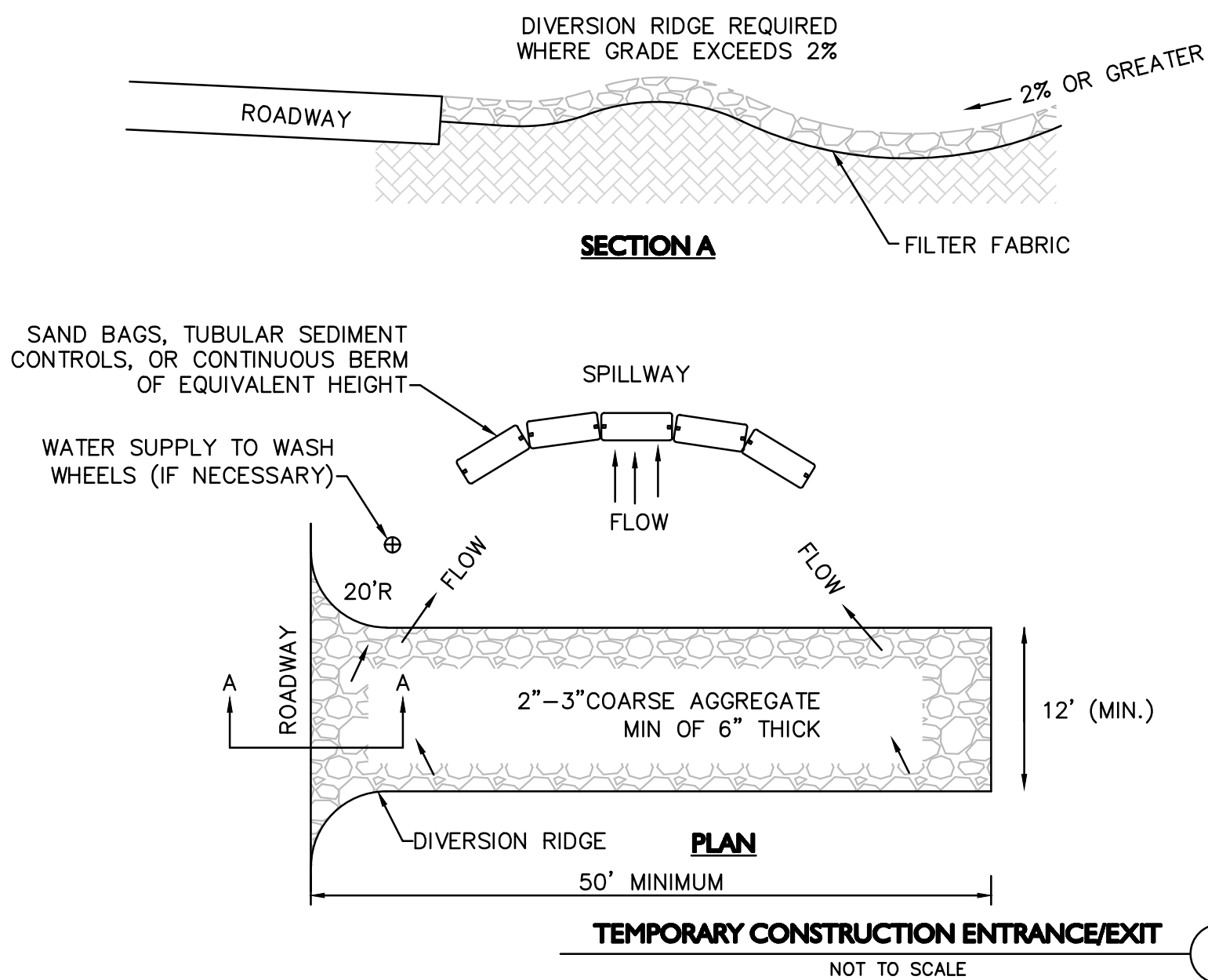
SILTSACK INLET DETAIL
NOT TO SCALE



NOTES:

1. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH STRAW AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.
2. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 1LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH STRAW MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.

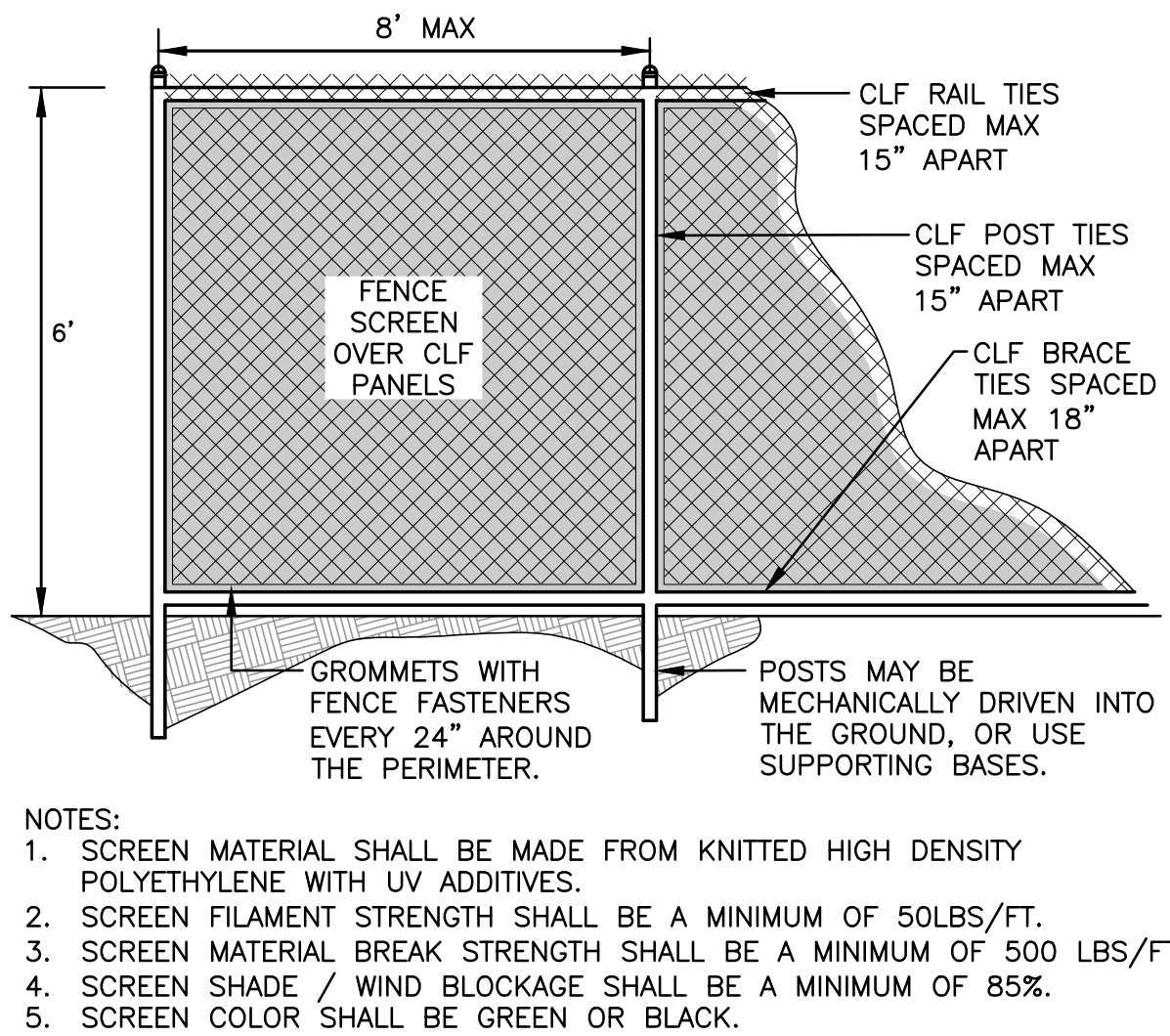
STOCKPILE PROTECTION DETAIL
NOT TO SCALE



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. USE SANDBAGS, TUBULAR SEDIMENT CONTROLS, OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

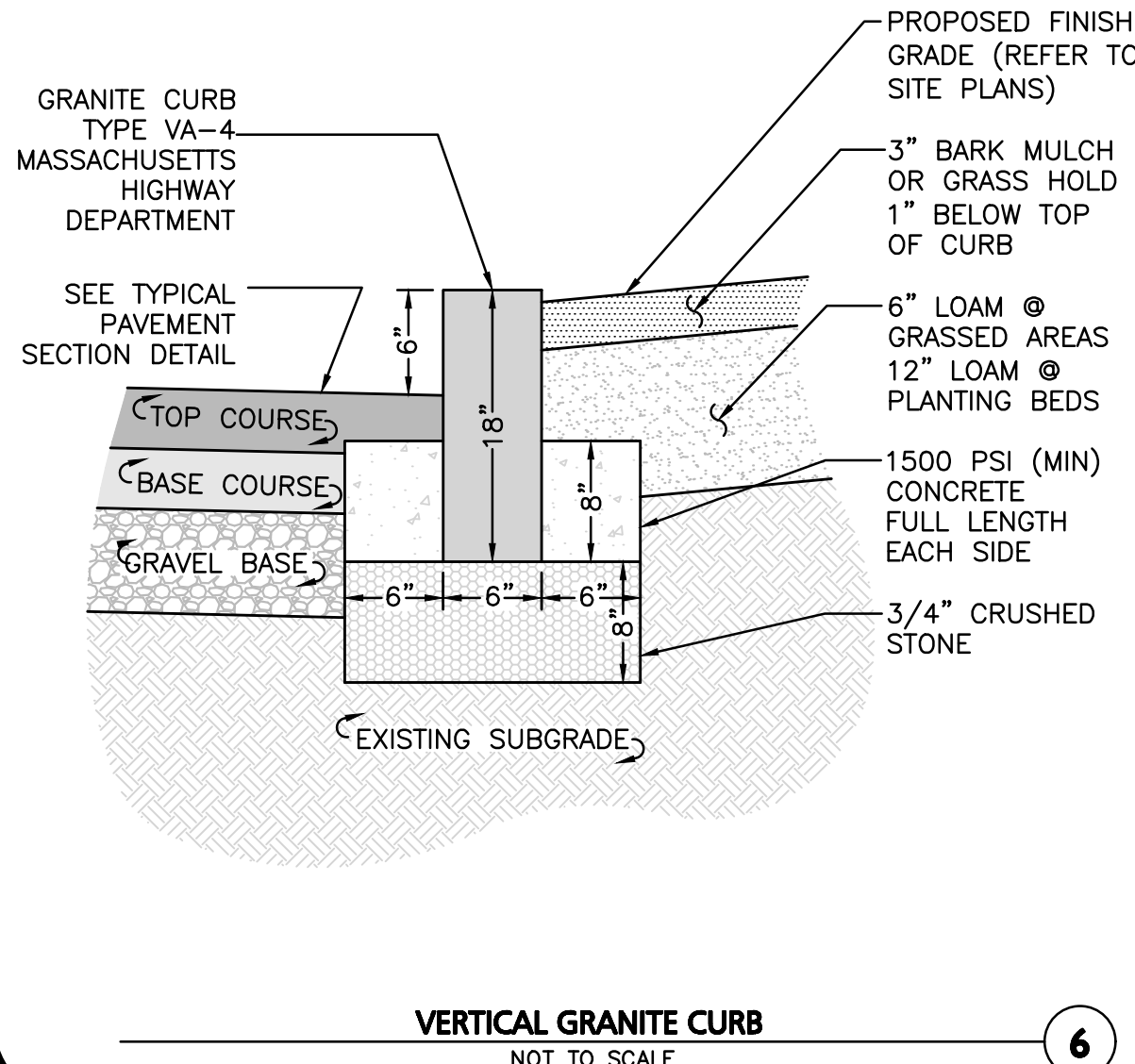
TEMPORARY CONSTRUCTION ENTRANCE/EXIT
NOT TO SCALE



NOTES:

1. SCREEN MATERIAL SHALL BE MADE FROM KNITTED HIGH DENSITY POLYETHYLENE WITH UV ADDITIVES.
2. SCREEN FILAMENT STRENGTH SHALL BE A MINIMUM OF 50LBS/FT.
3. SCREEN MATERIAL BREAK STRENGTH SHALL BE A MINIMUM OF 500 LBS/FT.
4. SCREEN SHADE / WIND BLOCKAGE SHALL BE A MINIMUM OF 85%.
5. SCREEN COLOR SHALL BE GREEN OR BLACK.

TEMPORARY CONSTRUCTION FENCE w/ SCREEN
NOT TO SCALE



GRANITE CURB
TYPE VA-4
MASSACHUSETTS
HIGHWAY
DEPARTMENT

PROPOSED FINISH
GRADE (REFER TO
SITE PLANS)

3" BARK MULCH
OR GRASS HOLD
1" BELOW TOP
OF CURB

6" LOAM @
GRASSED AREAS
12" LOAM @
PLANTING BEDS

1500 PSI (MIN)
CONCRETE
FULL LENGTH
EACH SIDE

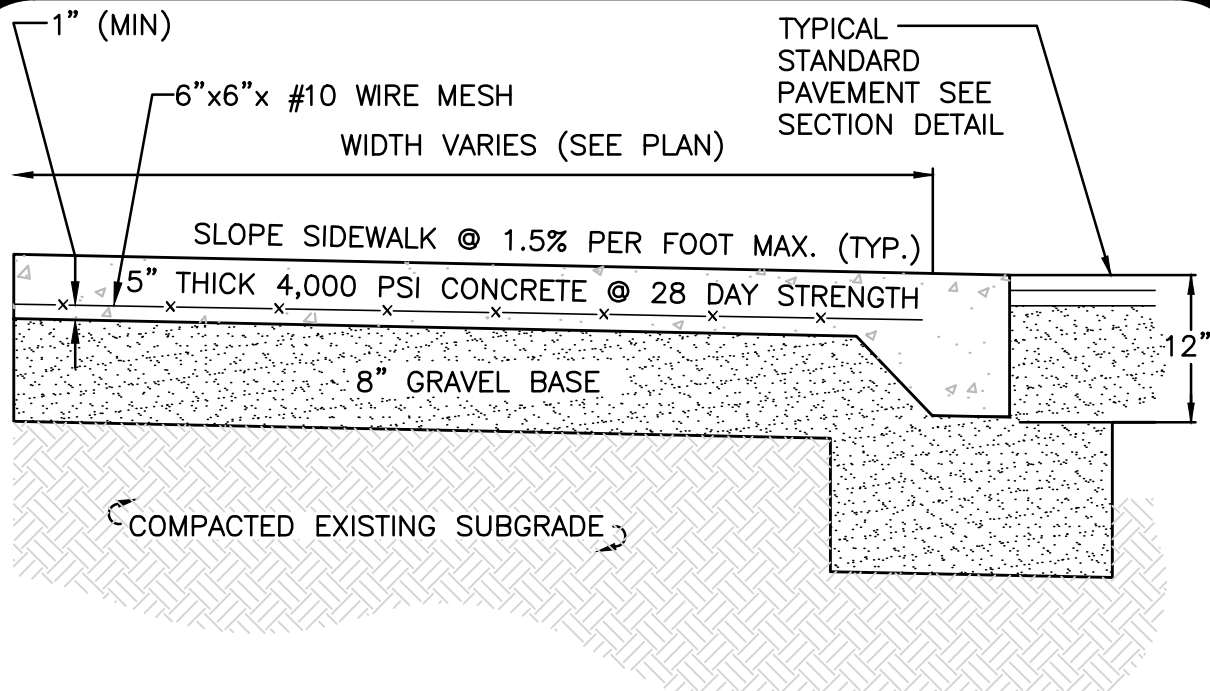
3/4" CRUSHED
STONE

SEE TYPICAL
PAVEMENT
SECTION
DETAIL

TOP COURSE
BASE COURSE
GRAVEL BASE

EXISTING SUBGRADE

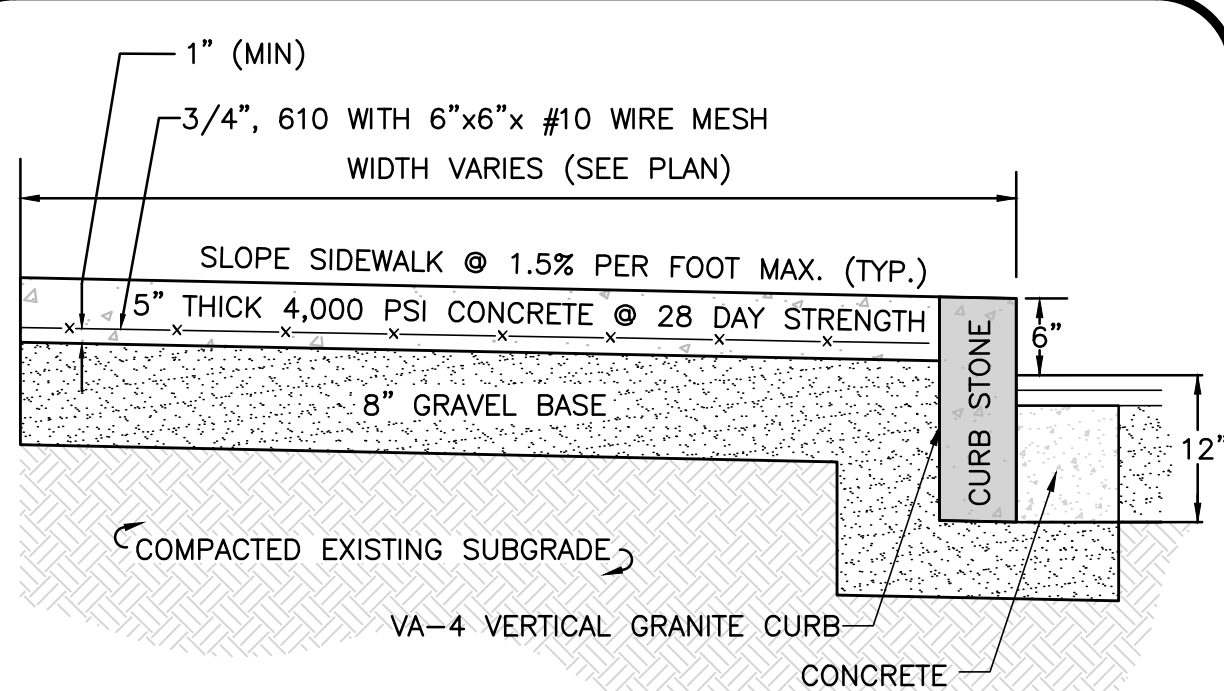
VERTICAL GRANITE CURB
NOT TO SCALE



NOTES:

1. SIDEWALK TO HAVE TOOLED JOINTS IN A 5' x 5' (TYP.) GRID WITH EXPANSION JOINTS 15' ON CENTER WITH PREMOLDED FILLER.
2. SEE PLAN FOR ELEVATIONS
3. SIDEWALK CROSS SLOPE TO BE 1.5% MAX & SIDEWALK LONGITUDINAL RUNNING SLOPE TO BE 4.5% MAX, TYP.
4. APPLY BRUSH MARKS PERPENDICULAR TO TRAVEL PATH.

CONCRETE SIDEWALK
NOT TO SCALE

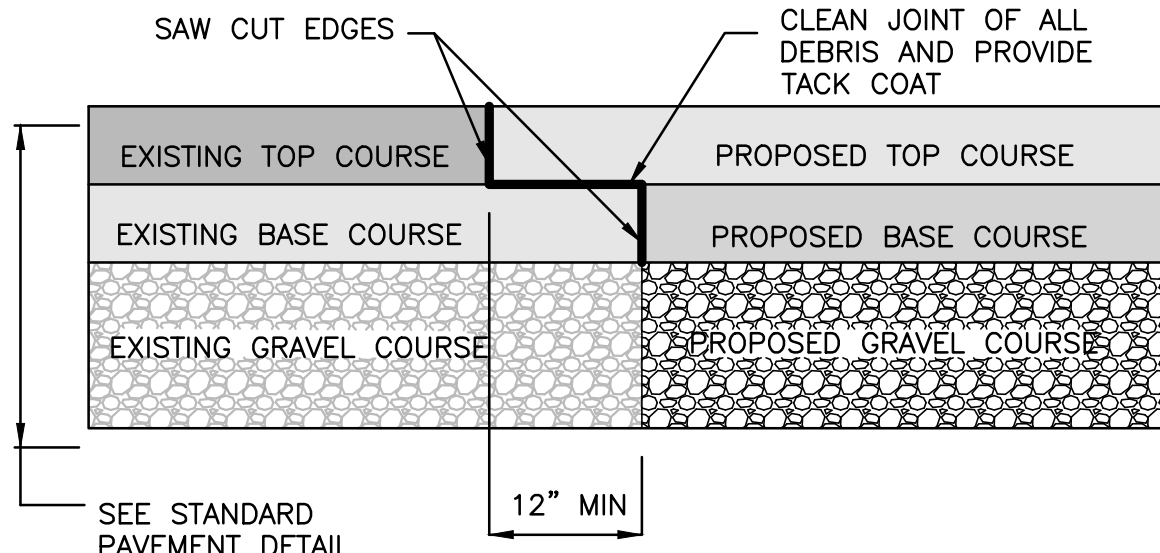


NOTES:

1. SIDEWALK TO HAVE TOOLED JOINTS IN A 5' x 5' (TYP.) GRID WITH EXPANSION JOINTS 15' ON CENTER AND PREMOLDED FILLER.
2. SEE PLAN VIEW FOR ELEVATIONS AT CURB
3. SIDEWALK CROSS SLOPE TO BE 1.5% MAX & SIDEWALK LONGITUDINAL RUNNING SLOPE TO BE 4.5% MAX, TYP.

CONCRETE SIDEWALK WITH VGC CURBSTONE
NOT TO SCALE

NOTE:
TACK COAT - PROVIDE EMULSIFIED ASPHALT WHICH CONFORMS TO THE REQUIREMENTS OF THE STATE SPECIFICATIONS, DILUTED WITH ONE PART WATER TO ONE ONE PART ASPHALT FOLLOWING AASHTO M140/ASTM D997, OR AASHTO M208/ASTM D2397, SS-1H, CSS-1, OR CSS-1H.



SAW CUT EDGES

CLEAN JOINT OF ALL
DEBRIS AND PROVIDE
TACK COAT

EXISTING TOP COURSE
EXISTING BASE COURSE
EXISTING GRAVEL COURSE

PROPOSED TOP COURSE
PROPOSED BASE COURSE
PROPOSED GRAVEL COURSE

SEE STANDARD
PAVEMENT DETAIL

PAVEMENT KEY CUT DETAIL
NOT TO SCALE



PROFESSIONAL ENGINEER FOR
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ARLINGTON, MA 02476

PROJECT NO. 2729-02 DATE: 10/23/2020

SCALE: AS SHOWN DWG. NAME: C2729-02

DESIGNED BY: ARM CHECKED BY: BDJ

PREPARED BY:

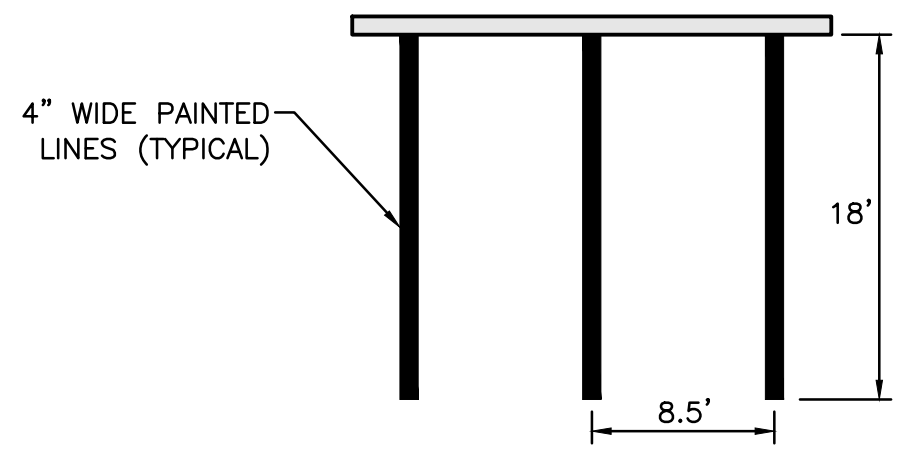
ALLEN & MAJOR ASSOCIATES, INC.
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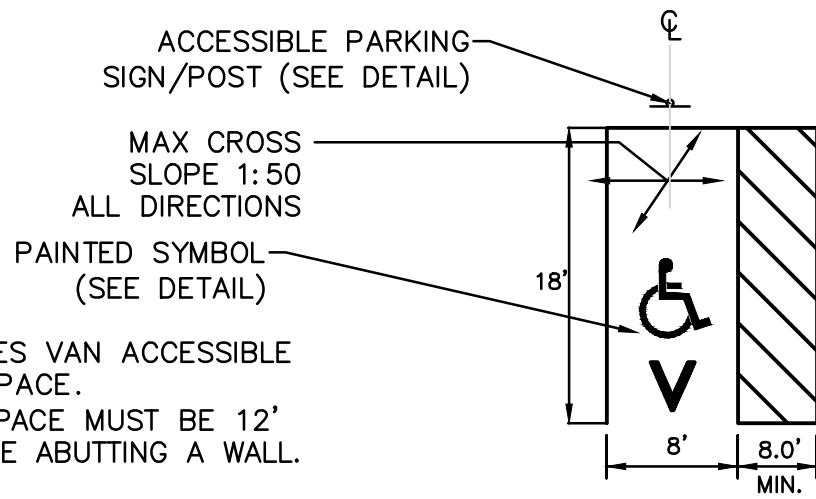
DRAWING TITLE: DETAILS SHEET No. C-501

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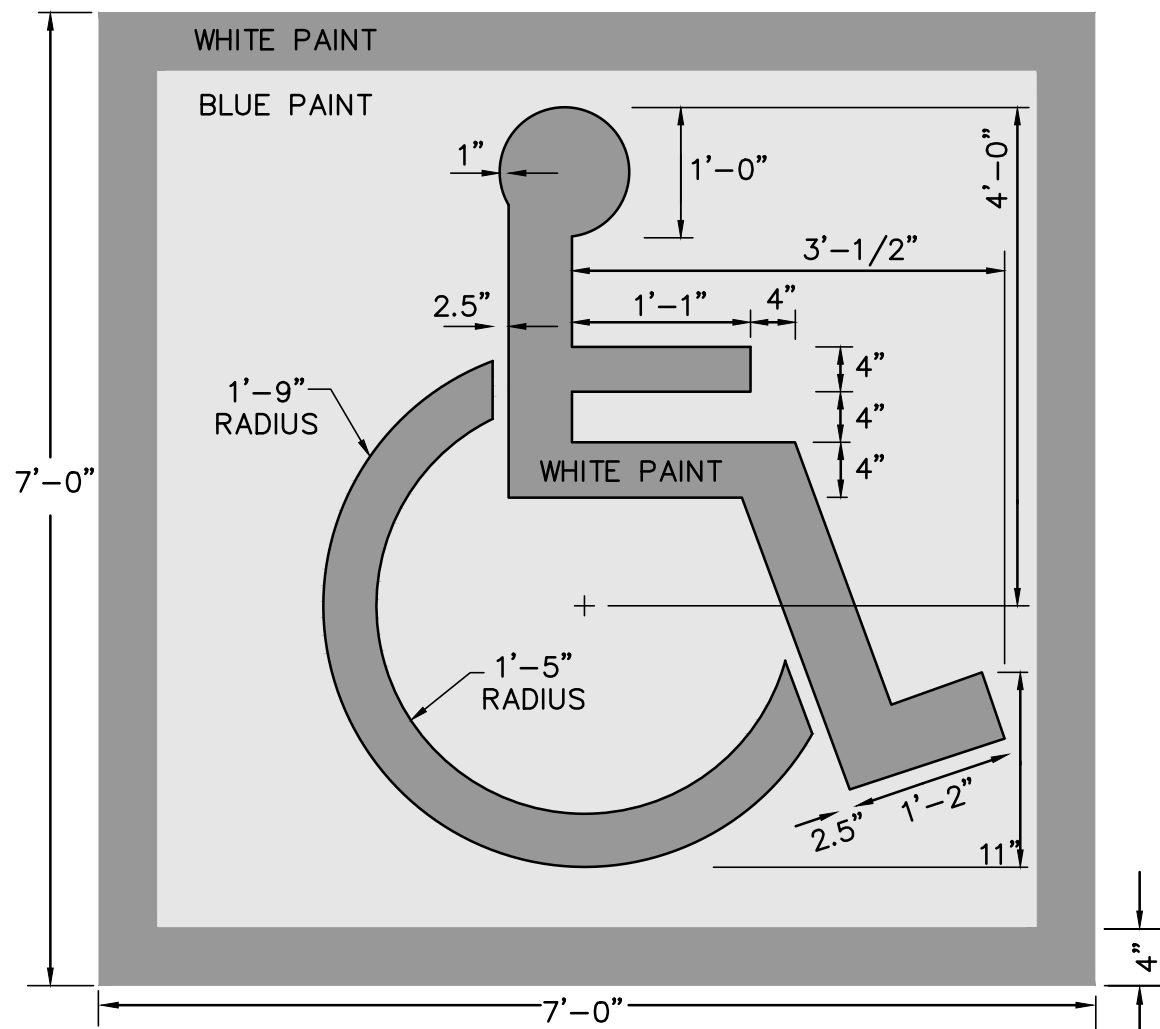
STANDARD STALL



ADA AND STANDARD PARKING STRIPING

NOT TO SCALE

1



SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND. USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) DOUBLE COAT.

ACCESSIBLE PARKING STALL PAVEMENT MARKING

NOT TO SCALE

2

NOT USED

NOT TO SCALE

3

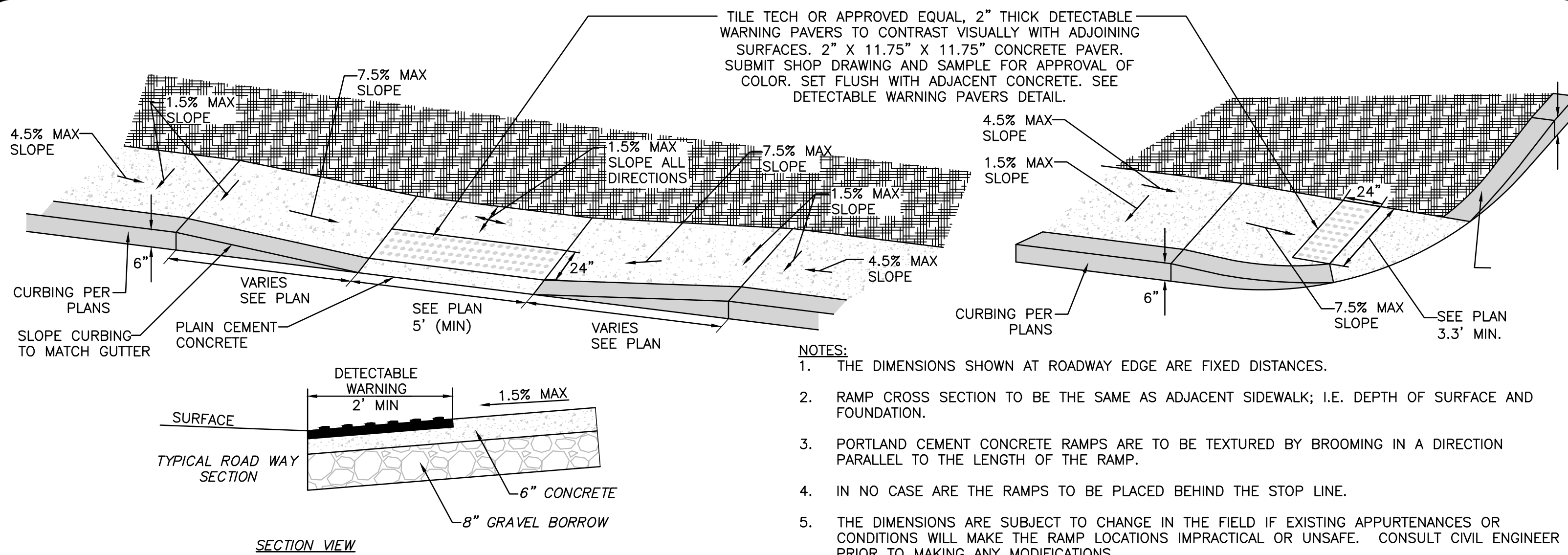
DESC.	SIGN	SIZE	MOUNTING HEIGHT	DESCRIPTION	REFLEC-TORIZED
R7-BM (MODIFIED)		12" x 26"	7' - 0"	WHITE TEXT ON BLUE FIELD WITH WHITE BORDER	YES

- TRAFFIC AND SAFETY SIGNAGE SHALL COMPLY WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) STANDARDS.
- MOUNTING HEIGHT IS DEFINED AS THE DISTANCE FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVEMENT.

SIGN TABLE

NOT TO SCALE

4

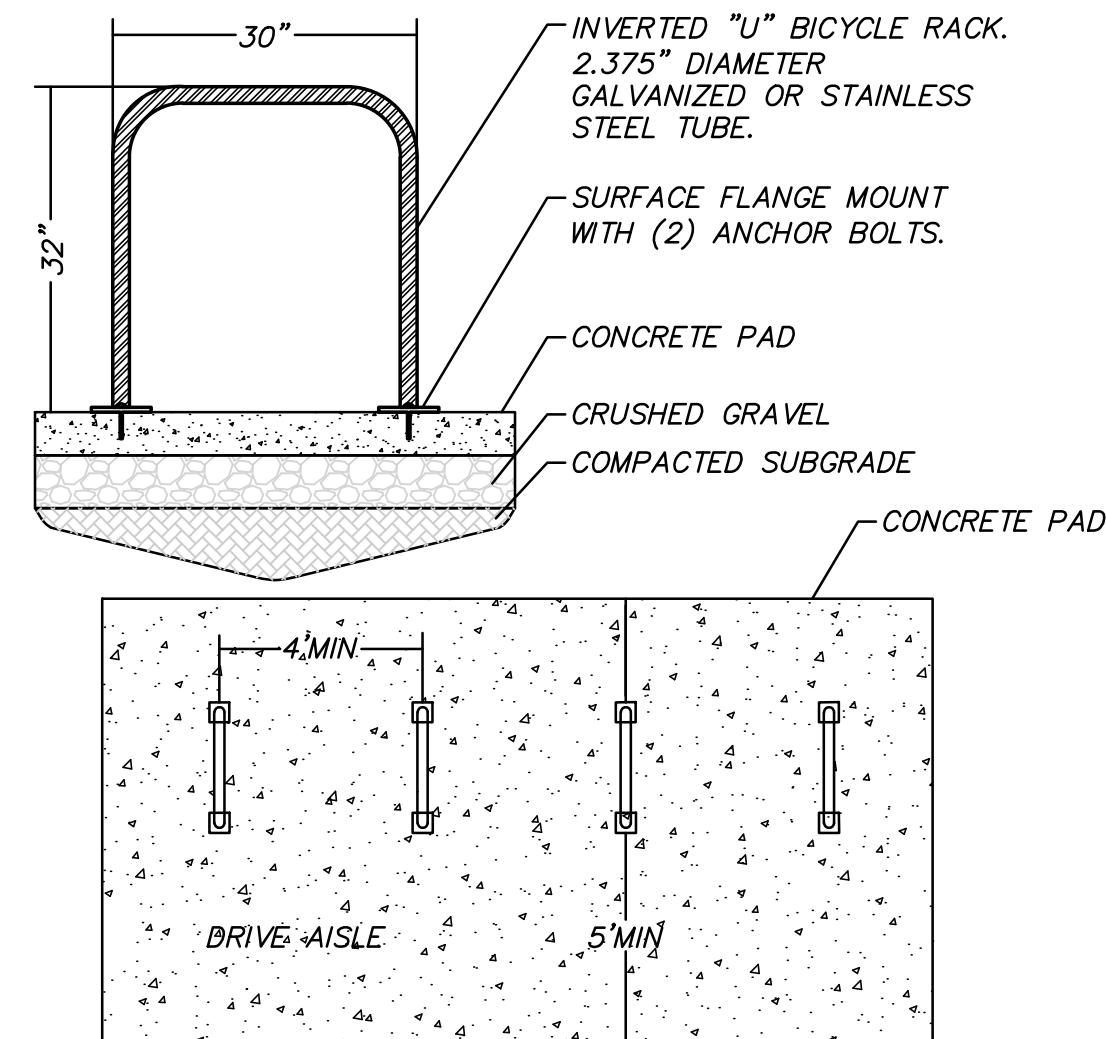


- NOTES:
- THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.
 - RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
 - PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
 - IN NO CASE ARE THE RAMPS TO BE PLACED BEHIND THE STOP LINE.
 - THE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE. CONSULT CIVIL ENGINEER PRIOR TO MAKING ANY MODIFICATIONS.

HANDICAP CURB CUT & CURB TRANSITION

NOT TO SCALE

5

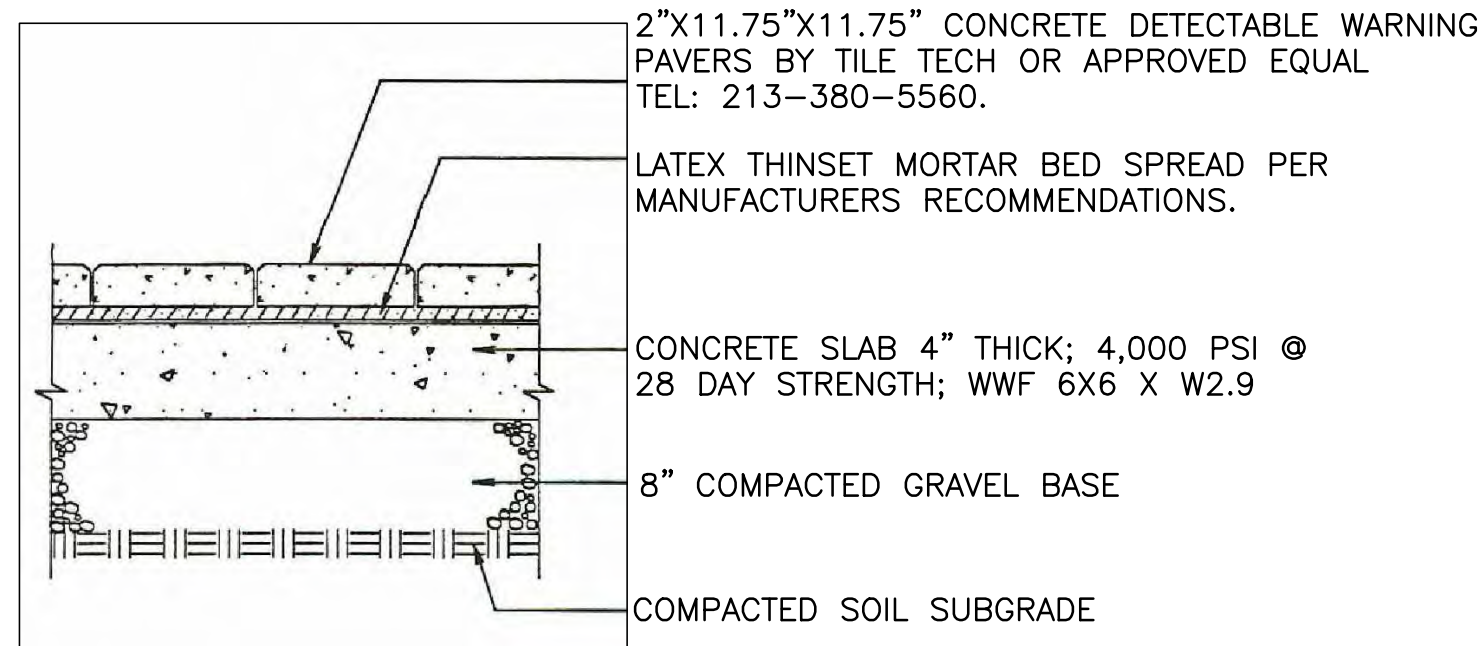


NOTE: BIKE RACKS TO BE FROM PARK A BIKE: MODEL 200 SERIES-INVERTED U BIKE RACKS HR202 30\"/>

BICYCLE RACK DETAIL

NOT TO SCALE

6



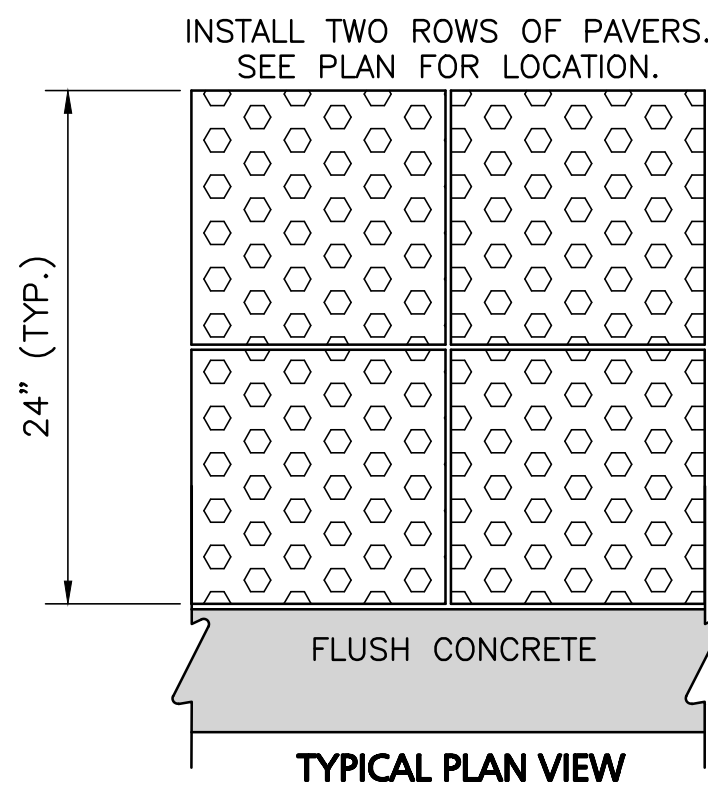
TYPICAL SECTION VIEW

- NOTES:
- CONCRETE SLAB SHALL BE SLOPED 1.5% CROSS PITCH MAX TO PROVIDE COMPLETE SURFACE DRAINAGE. SEE GRADING PLAN & HANDICAP CURB CUT / CURB TRANSITION DETAIL.
 - SLAB TO HAVE STEEL TROWEL AND FINE BROOM FINISH. DO NOT USE CURING COMPOUNDS. CONTRACTOR TO ADD EXPANSION JOINTS AND PREMOLDED FILLER AT EDGE OF TILES AND ADJACENT MATERIAL.
 - SET TILES FLUSH WITH ADJACENT MATERIALS.
 - SUBMIT SHOP DRAWINGS OF TILES AND SAMPLE FOR APPROVAL OF COLOR TO OWNER / ARCH.
 - INSTALL DETECTABLE WARNING PAVERS PER MANUFACTURER'S RECOMMENDATIONS.

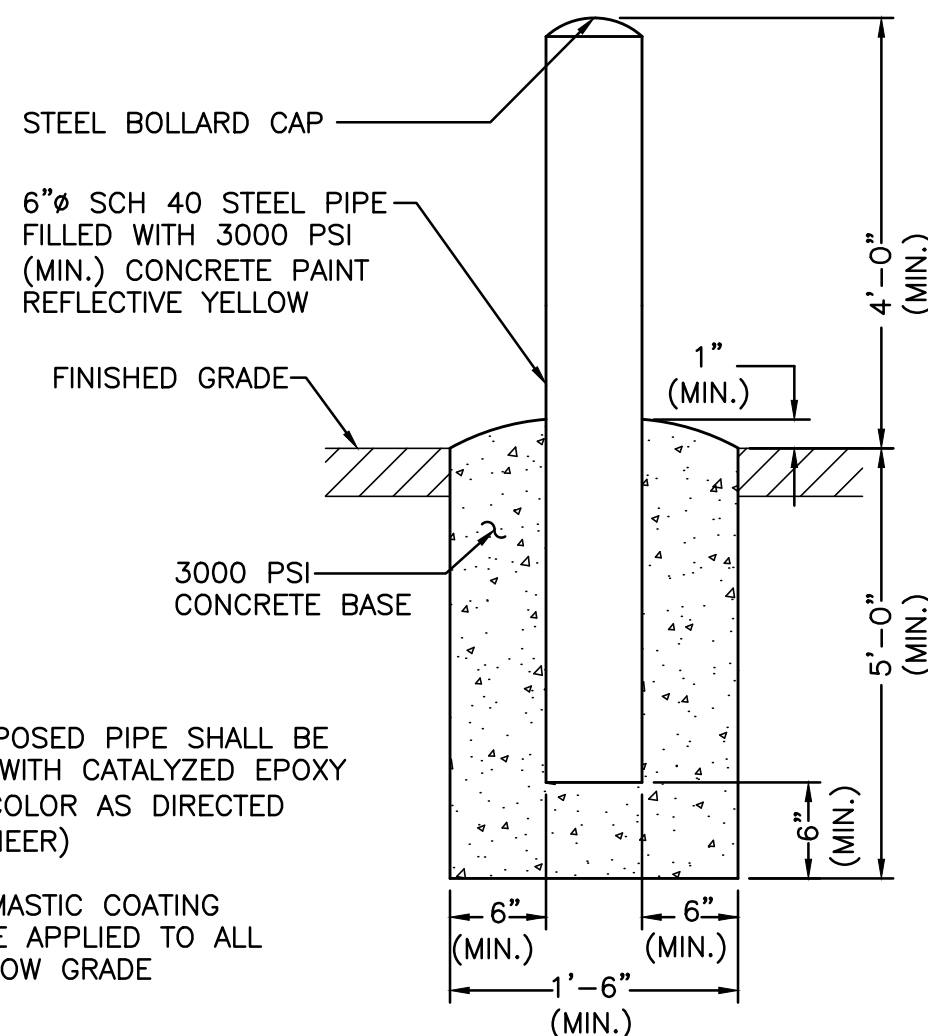
TACTILE WARNING PAVERS

NOT TO SCALE

7



TYPICAL PLAN VIEW



- NOTES:
- ALL EXPOSED PIPE SHALL BE PAINTED WITH CATALYZED EPOXY PAINT. (COLOR AS DIRECTED BY ENGINEER)
 - A BITUMASTIC COATING SHALL BE APPLIED TO ALL PIPE BELOW GRADE

FIXED PIPE BOLLARD DETAIL

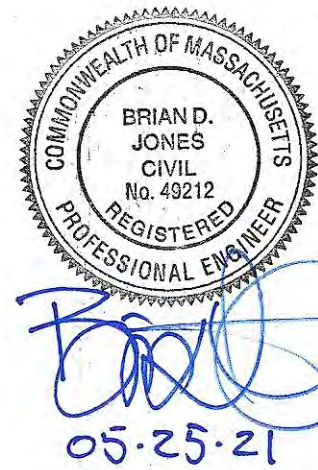
NOT TO SCALE

8

NOT USED

NOT TO SCALE

9



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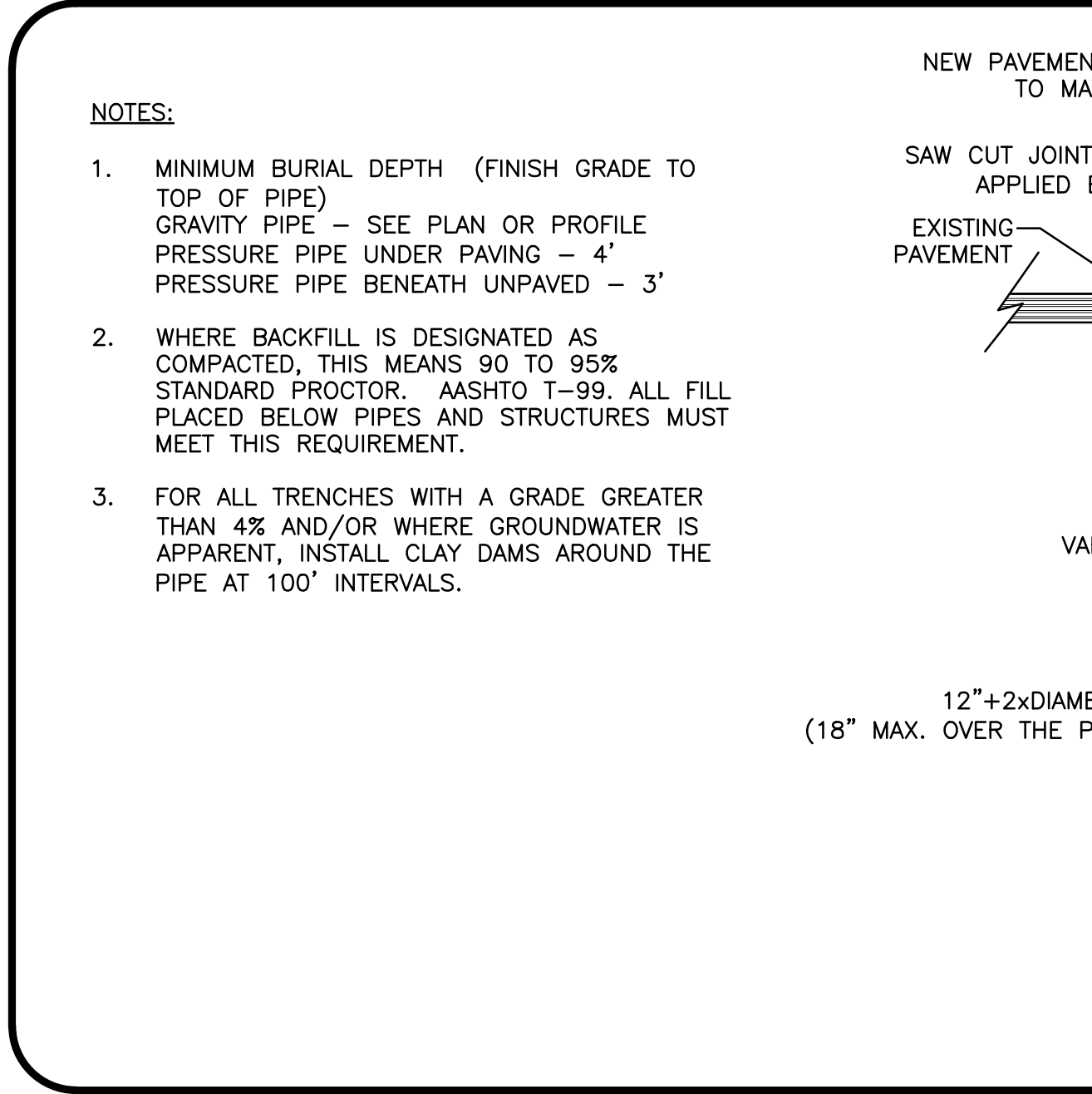
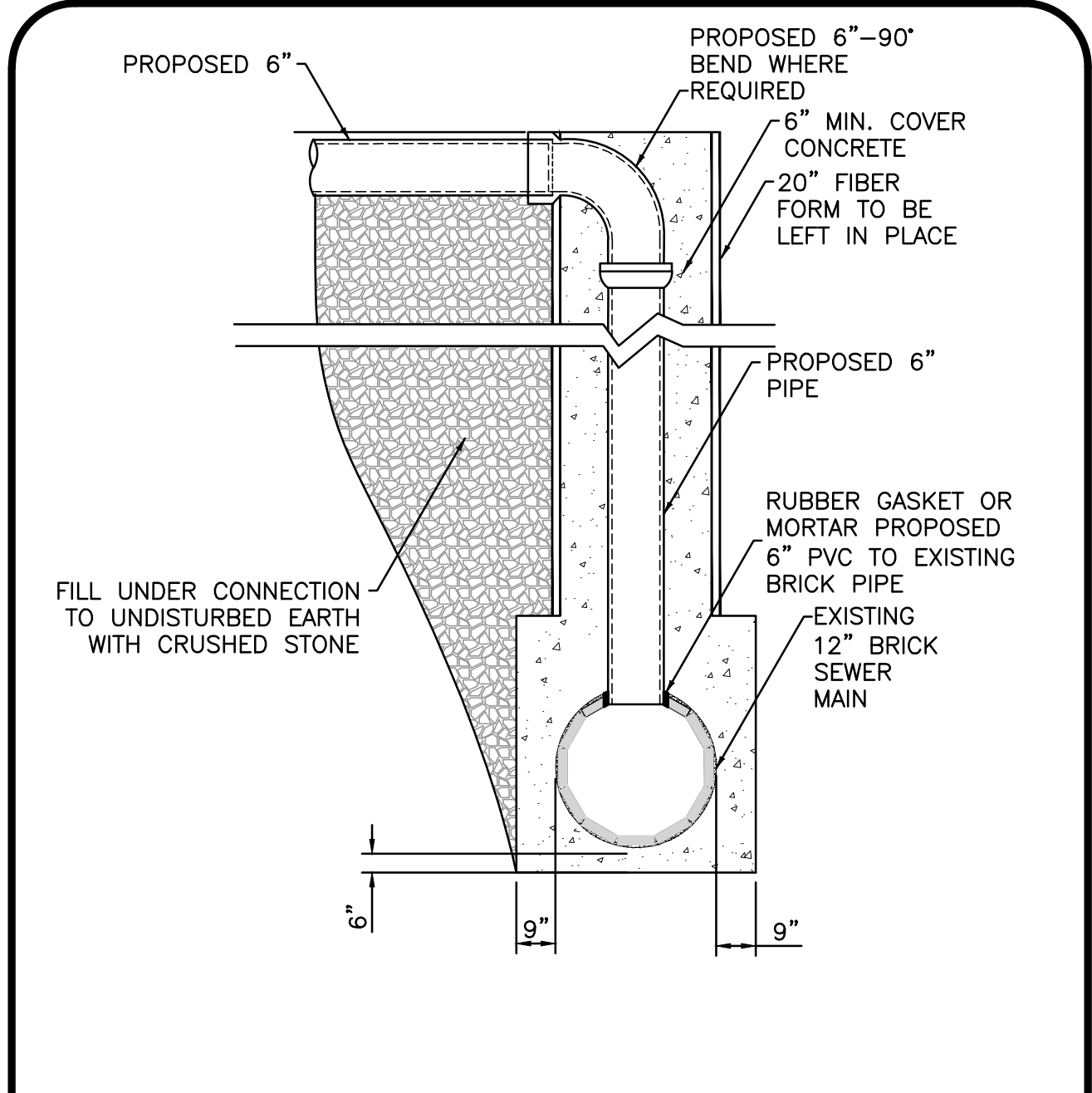
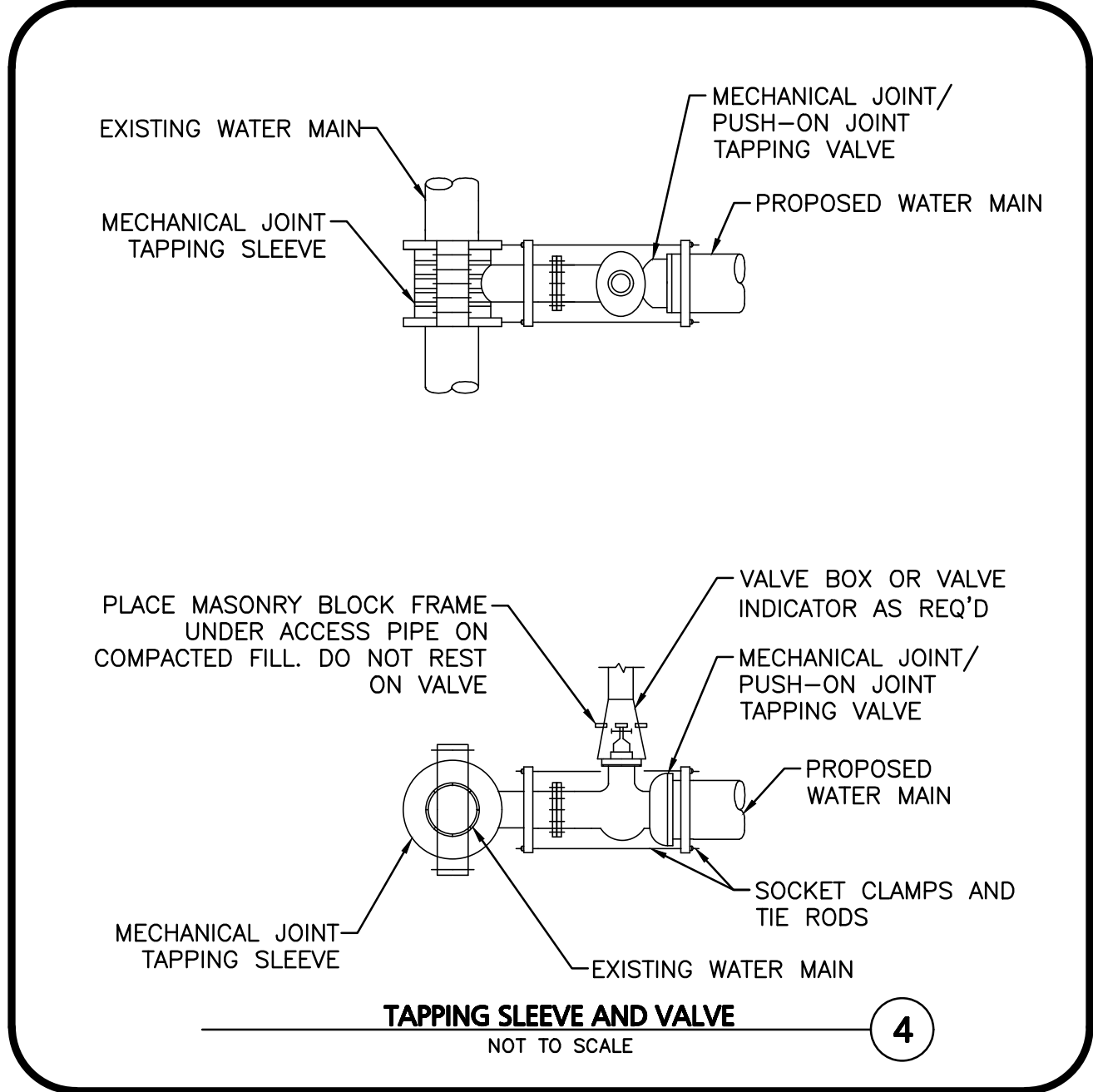
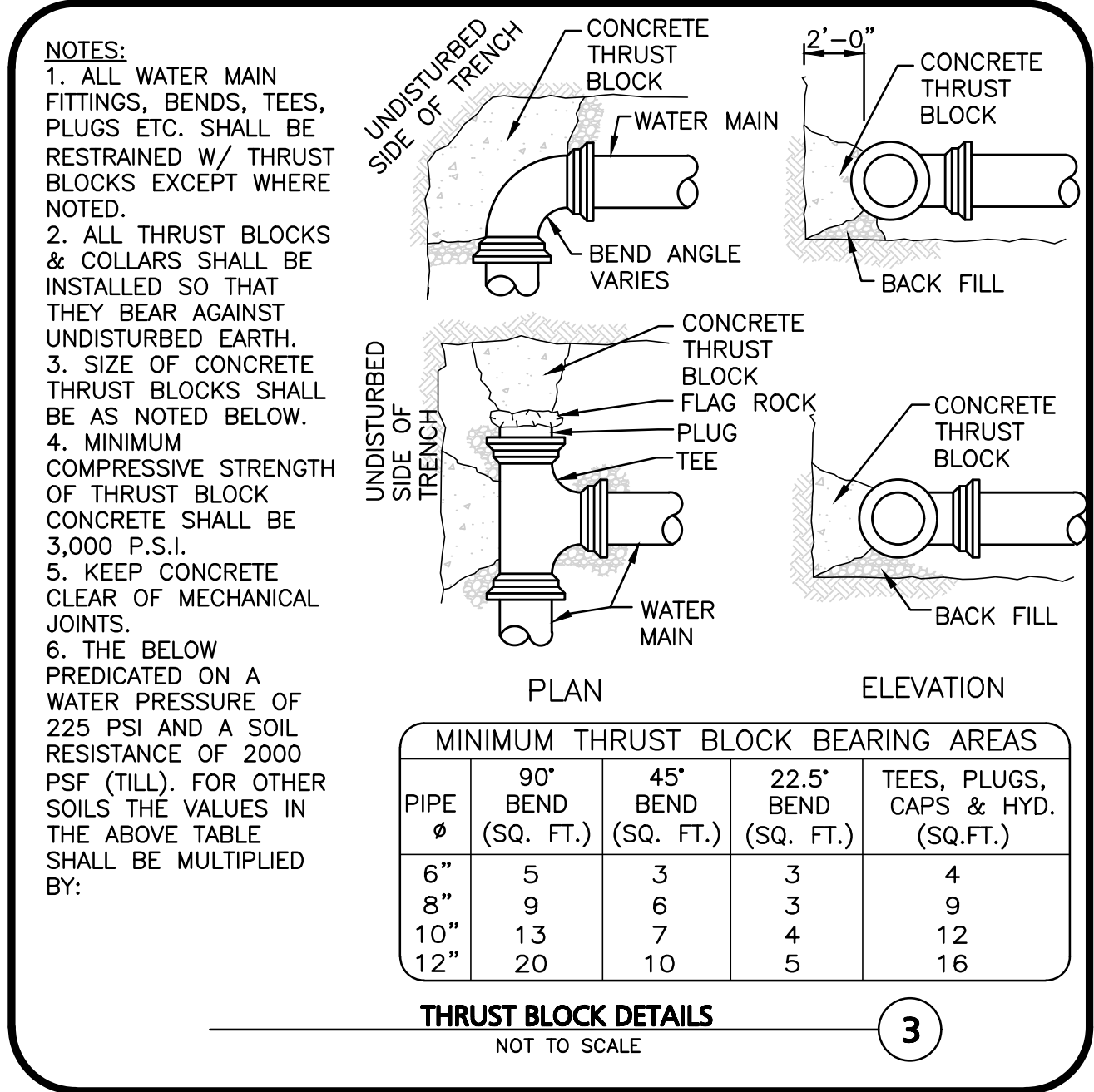
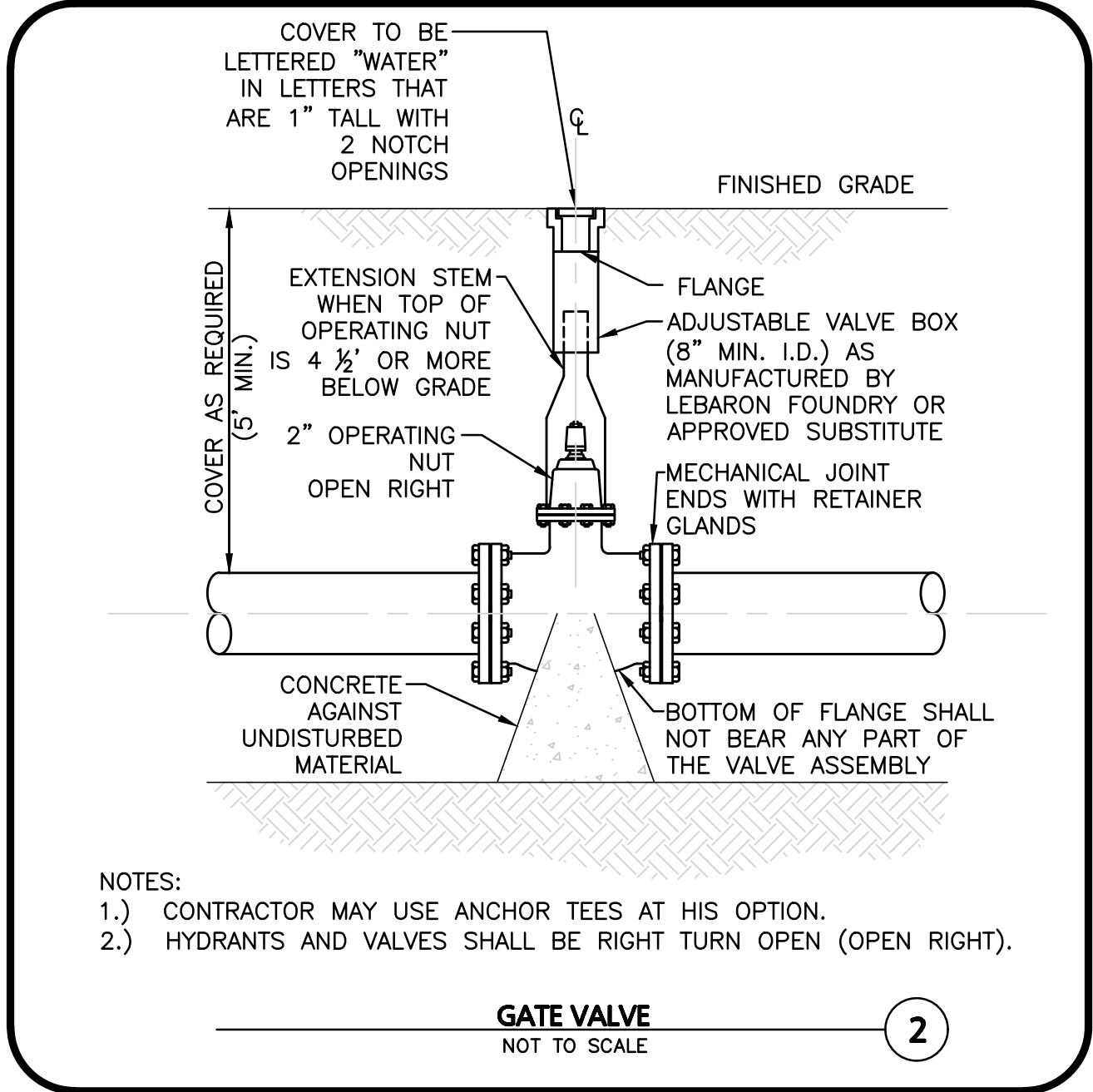
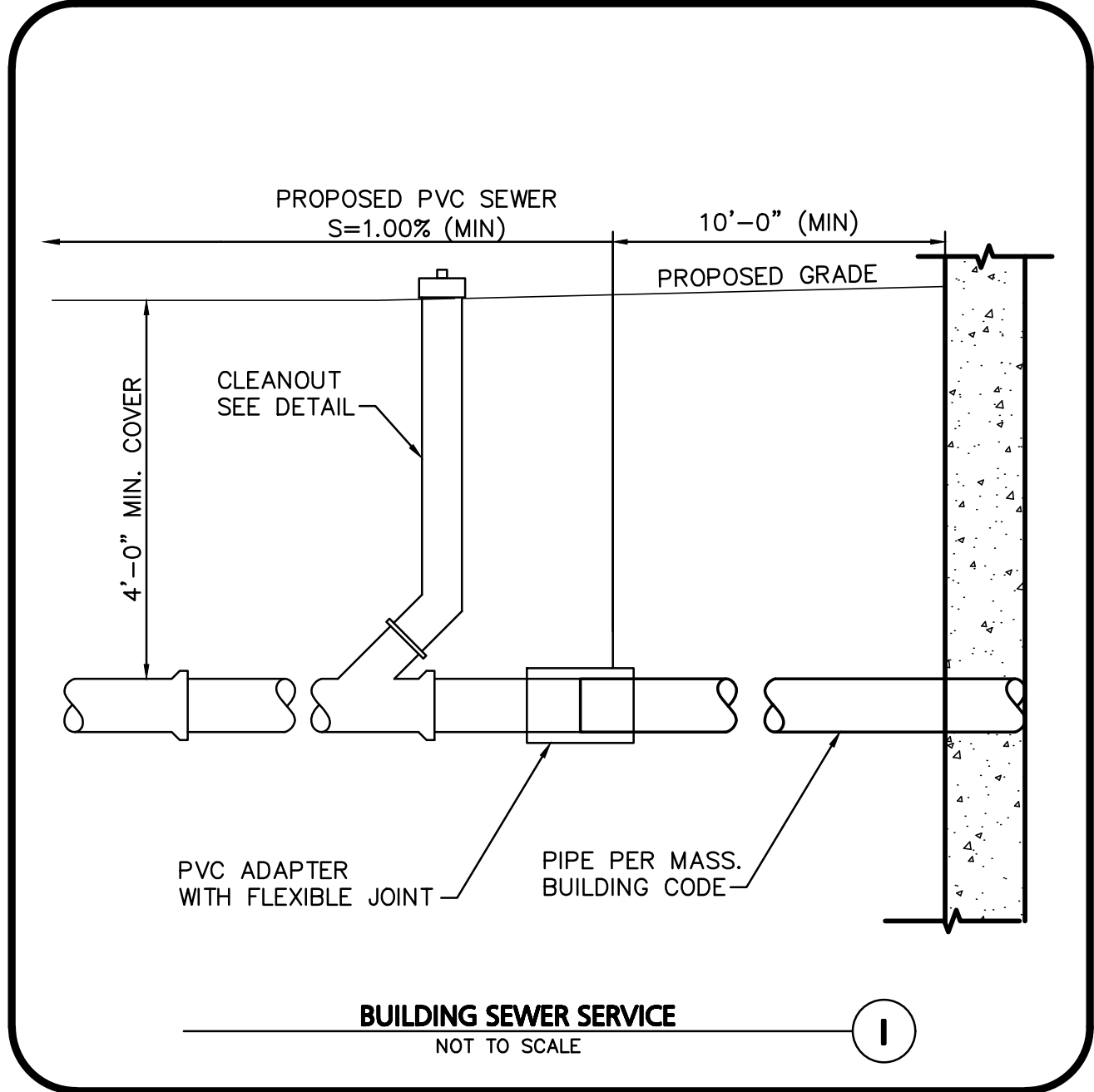
DRAWING TITLE:

DETAILS

SHEET No.

C-502

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CONDITION & PIPE	**SELECT MATERIAL	LINING MATERIAL	Y-DIMENSION
DUCTILE IRON "ORDINARY SOIL"	TYPE I, II, OR III	SAND OR TYPE III	3"
RCP "ORDINARY SOIL"	TYPE II OR III	SAND OR TYPE III	3"
ALL PIPE OVER BEDROCK OR LEDGE	TYPE II OR III	SAND OR TYPE III	8"
DUCTILE IRON IN CLAY OR MUCK	TYPE II OR III	SAND	4"
RCP IN CLAY	TYPE II OR III	SAND	8"
ALL PLASTICS	TYPE III	SAND OR TYPE III	6"

* SUITABLE MATERIAL SHALL CONTAIN NO STONE GREATER THAN 4" IN DIAMETER, NO FROZEN LUMPS, AND ONLY MINOR AMOUNTS OF CLAY OR ORGANIC MATERIAL. ALL MATERIAL TO BE PLACED IN MAX 12" LIFTS AND COMPACTED BEFORE PLACING NEXT LIFT.

**TYPE I MATERIAL SHALL BE EITHER GRAVEL OR EXCAVATED MATERIAL CONTAINING NO STONES GREATER THAN 1.5" DIAMETER, NO FROZEN LUMPS, CLAY OR ORGANIC MATERIAL.

**TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1.5" SQUARE OPENING, NOT MORE THAN 25% PASSING A 3/4" OPENING, AND NOT MORE THAN 5% PASSING A 1/2" SQUARE OPENING.

**TYPE III MATERIAL SHALL BE CLEAN, HARD, CRUSHED STONE FREE FROM COATINGS AND THOROUGHLY WASHED WITH A GRADATION BY WEIGHT OF 100% PASSING A 1" SQUARE OPENING, AND 0 TO 5% PASSING A 1/2" SQUARE OPENING.

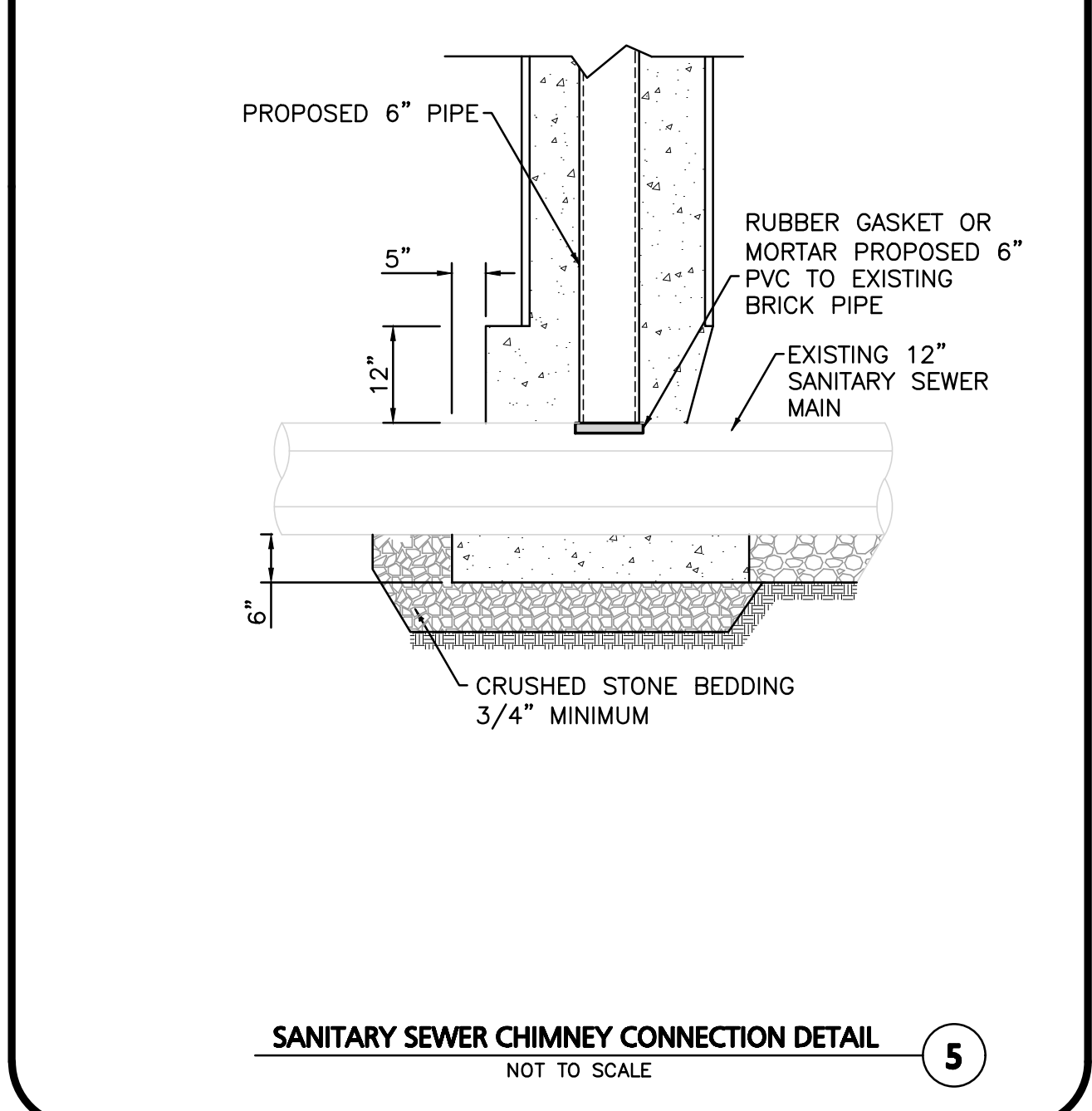
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CONDITION & PIPE	**SELECT MATERIAL	LINING MATERIAL	Y-DIMENSION
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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
2	05/25/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW

APPLICANT/OWNER:
192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:
190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO.	2729-02	DATE:	10/23/2020
SCALE:	AS SHOWN	DWG. NAME:	C2729-02
DESIGNED BY:	ARM	CHECKED BY:	BDJ

PREPARED BY:

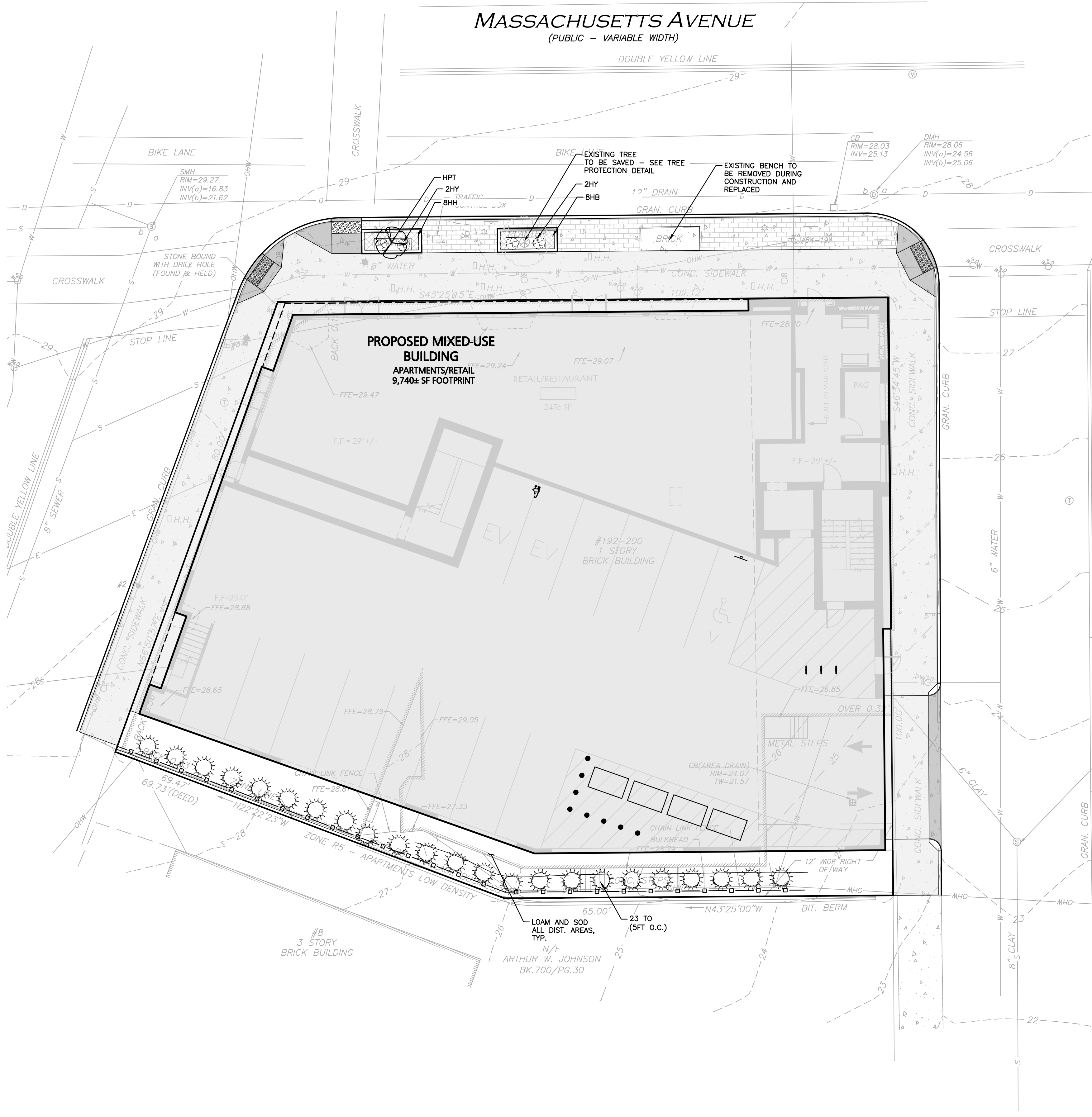
ALLEN & MAJOR ASSOCIATES, INC.
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DETAILS	C-503

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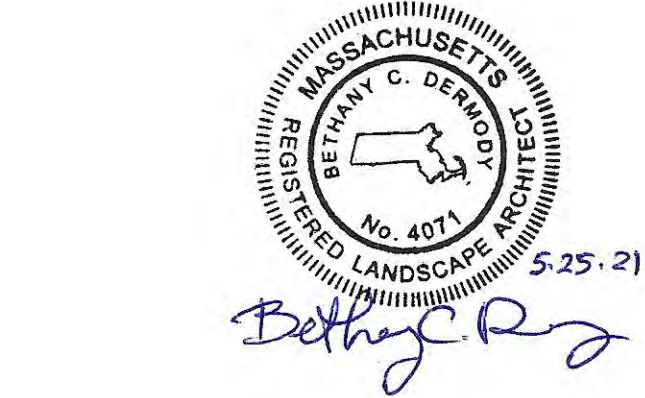
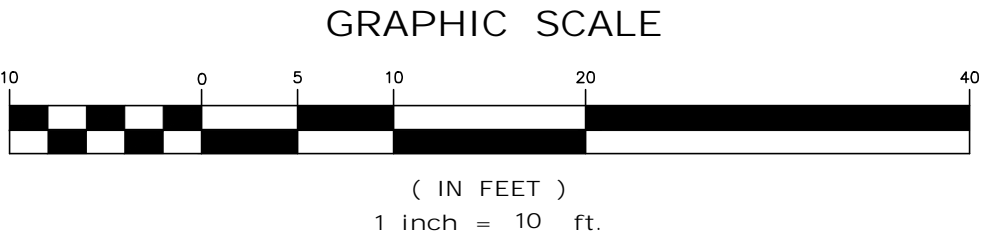


LEGEND	
DECIDUOUS TREE	
EVERGREEN TREE	
FLOWERING TREE	
SHRUBS	
MULCH BED	
PERENNIALS/GROUNDCOVER	

PLANTING SCHEDULE-TREES, SHRUBS, GROUNDCOVERS & PERENNIALS

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	COMMENTS
EVERGREEN TREES						
TO	26	THUJA O. 'WINTERGREEN'	WINTERGREEN ARBORVITAE	6-7' HT	AS SHOWN	B&B
TREES/SHRUBS						
HPT	1	HYDRANGEA PANICULATA 'LIMELIGHT'	TREE FORM LIMELIGHT HYDRANGEA	5-6' HT. TREEFORM	AS SHOWN	B&B
HY	4	HYDRANGEA ARBORESCENS 'INVINCIBELLE WEE WHITE'	INVINCIBELLE WEE WHITE HYDRANGEA	#3	AS SHOWN	POT
PERENNIALS						
HH	8	HEMEROCALLIS 'HAPPY RETURNS'	HAPPY RETURNS DAYLILLY	#1	24" O.C	STAGGERED
HB	8	HOSTA 'HADSPEN BLUE'	HADSPEN BLUE HOSTA	#1	24" O.C	STAGGERED

- NOTES:
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 - ALL LANDSCAPED AREAS WITH SHRUBS, TREES, AND PERENNIALS TO HAVE 18" MINIMUM DEPTH OF TOPSOIL. EIGHTEEN INCHES OF TOPSOIL AROUND TREES AND SHRUBS DOES NOT INCLUDE AMENDED PLANTING SOIL WITHIN TREE / SHRUB PIT FOR FULL DEPTH OF ROOTBALLS. SEE PLANTING DETAILS FOR PLANTING DEPTH AT SHRUBS AND TREES. ALL AREAS OF LOAM AND SEED OR LOAM & SOD TO HAVE 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL TO BE TESTED BY CONTRACTOR, AND APPROVED BY A&M PRIOR TO PURCHASE AND OR PLACEMENT. GENERAL CONTRACTOR, DEMOLITION CONTRACTOR, AND LANDSCAPE CONTRACTOR TO COORDINATE PROPER DEPTH OF EXISTING MATERIAL REMOVAL ACROSS SITE SO THAT 18" MINIMUM AND 6" MINIMUM DEPTHS OF PROPOSED TOPSOIL NOTED ABOVE ARE MET AT NO ADDITIONAL COST TO OWNER. SEE TOPSOIL DETAIL.



REGISTERED LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

2	05/25/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW
REV	DATE	DESCRIPTION

APPLICANT/OWNER:

192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:

190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO.	2729-02	DATE:	10/23/2020
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SCALE:	1" = 10'	DWG. NAME:	C2729-02
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DESIGNED BY:	BCD	CHECKED BY:	BDJ
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PREPARED BY:



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DRAWING TITLE:	SHEET No.
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LANDSCAPE PLAN L-101

LOAM AND SODDING NOTES

CONTRACTOR SHALL SOD AREAS NOTED ON THE PLANS.

SOD IS TO BE A BLEND OF FOUR TO FIVE CURRENT AND IMPROVED HYBRID BLUEGRASS AND FESCUE MIXES APPROPRIATE FOR BOTH SEMI-SHADED AND AREAS OF SUN.

HYBRIDS MAY INCLUDE: BLACKSTONE KENTUCKY BLUEGRASS, AWARD KENTUCKY BLUEGRASS, CHALLENGER KENTUCKY BLUEGRASS, BLACKBURG II KENTUCKY BLUEGRASS OR COMPARABLE AND EQUAL BLUEGRASS HYBRIDS.

1. SOD SHALL BE HIGH QUALITY, NURSERY GROWN ON CULTIVATED MINERAL AGRICULTURAL SOILS. SOD SHALL BE MOIST, AND MACHINE CUT AT A UNIFORM SOIL THICKNESS OF AT LEAST ¾" AT TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL INCLUDE TOP GROWTH AND THATCH. SOD SHALL BE FREE OF DISEASES, WEEDS, BARE SPOTS, OR INSECTS.
2. SODDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RE-SODDING OF BARE SPOTS. IF UNABLE TO SOD WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HP-FGM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SODDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.
3. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIC SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.
4. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RE-SODDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.

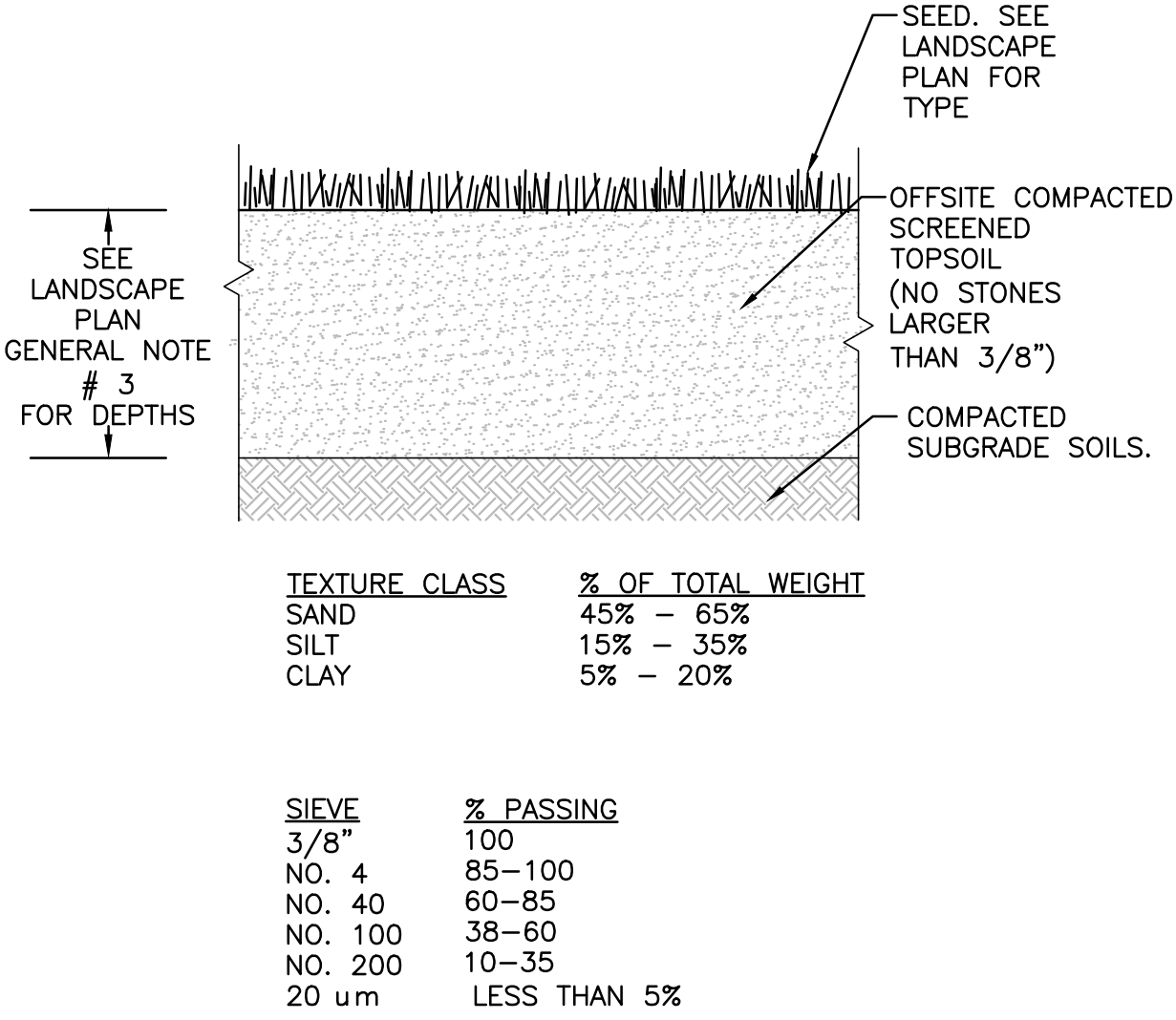
LANDSCAPE NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWN OF ARLINGTON, MA.
2. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES, ANY PERMITTING AGENCIES, AND "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF ANY CONFLICTS IN WRITING.
4. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA, ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
5. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
6. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT LIST. QUANTITIES SHOWN ON PLANS SHALL GOVERN OVER PLANT LIST.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE GUIDELINES ESTABLISHED BY THE STANDARDS FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE.



LANDSCAPE NOTES CONT.

10. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 6" OF SUITABLE LOAM & SEED LAWNS WITH 3:1 OR GREATER SLOPES SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET.
11. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING.
12. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
13. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 3" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH
14. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
15. ALL TREE STAKES SHALL BE STAINED DARK BROWN.
16. CONTRACTOR RESPONSIBLE FOR WATERING, AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.
17. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 24" OF TOP SOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.
18. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
19. AN MINIMUM 18" WIDE BARRIER OF 1" GRAY OR TAN PEASTONE SHALL BE INSTALLED IN ALL PLANT BEDS WHICH ABUT THE BUILDINGS. NO MULCH IS ALLOWED WITHIN 18" OF ALL BUILDINGS PER THE LATEST EXECUTIVE OFFICE OF PUBLIC SAFETY AND SECURITY DEPARTMENT OF FIRE SERVICES REGULATION (527 CMR 17.00). INSTALL 6" DEEP OF PEASTONE WITH MIRAFI WEED FABRIC BENEATH AND STEEL EDGING BETWEEN THE PEASTONE AND ADJACENT MULCH BED.
20. ALL PROPOSED LANDSCAPE AREAS INCLUDING MOWED LAWNS, TREES, SHRUB BEDS, AND PERENNIALS SHALL BE PROVIDED WITH WATER EFFICIENT UNDERGROUND IRRIGATION. DESIGN AND INSTALLATION OF IRRIGATION SYSTEM TO BE PERFORMED BY AN APPROVED IRRIGATION DESIGN BUILD CONTRACTOR OR BY AN APPROVED EQUAL, TO BE DETERMINED BY THE OWNERS REPRESENTATIVE AND LANDSCAPE ARCHITECT. IRRIGATION SYSTEM IS TO BE DESIGNED FOR EFFICIENT WATER USAGE INCLUDING: USE OF DRIP IRRIGATION FOR SHRUBS AND PERENNIALS, IRRIGATION SYSTEM WITH HEAD-TO-HEAD COVERAGE, A CENTRAL SHUT-OFF VALVE, AND A RAIN SENSOR TO SHUT OFF IRRIGATION DURING RAIN EVENTS.



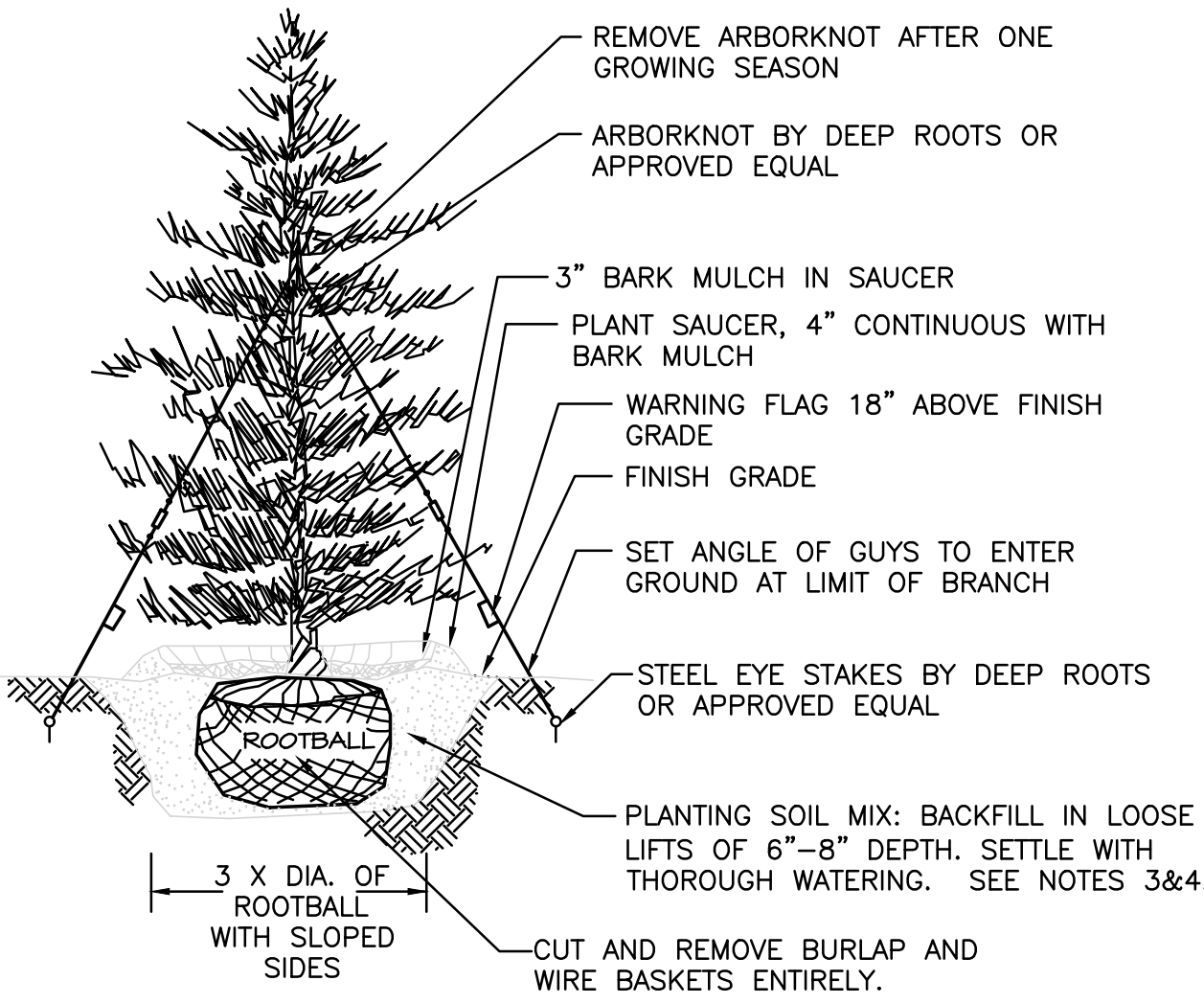
NOTES:

1. TOP OF LOAM (TOPSOIL) IS FINISH GRADE.
2. ALL TOPSOIL (BOTH ONSITE AND OFFSITE SOURCES) SHALL BE COMPOSED OF A NATURAL, FERTILE, FRIABLE SOIL TYPICAL OF CULTIVATED TOPSOILS OF THE LOCALITY. OFFSITE SOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND SUPPORT OF VEGETATIVE GROWTH, WITH ADDITIVES, IF REQUIRED, TO ACHIEVE PARTICLE DISTRIBUTION AND ORGANIC CONTENT BELOW. TOPSOIL SHALL BE TAKEN FROM A WELL-DRAINED, ARIABLE SITE, FREE OF SUBSOIL, LARGE STONES, EARTH CLOUDS, STICKS, STUMPS, CLAY LUMPS, ROOTS, OTHER OBJECTIONABLE, EXTRANEIOUS MATTER OR DEBRIS NOR CONTAIN TOXIC SUBSTANCES.
3. THE CONTRACTOR SHALL PROVIDE THE OWNER / LANDSCAPE ARCHITECT WITH TOPSOIL TEST RESULTS (RECOMMEND UMASS AMHERST SOIL TESTING LAB) FOR APPROVAL PRIOR TO OBTAINING AND PLACING THE SOIL. IF ANY TOPSOIL IS PURCHASED OR PLACED PRIOR TO APPROVAL BY OWNER / LANDSCAPE ARCHITECT, IT IS AT CONTRACTORS RISK, AND IT CAN BE REMOVED AT NO ADDITIONAL COST TO THE OWNER. IF THE PLANTING SOIL (BOTH ONSITE AND OFFSITE SOURCES) DOES NOT FALL WITHIN THE REQUIRED SIEVE ANALYSIS, TEXTURAL CLASS, ORGANIC CONTENT, OR PH RANGE, IT SHALL BE ADJUSTED TO MEET THE SPECIFICATIONS THROUGH THE ADDITION OF SAND, COMPOST, LIMESTONE, OR ALUMINUM SULFATE TO BRING IT WITHIN THE SPECIFIED LIMITS AT NO ADDITIONAL COST TO THE OWNER.
4. TOPSOIL SHALL HAVE A PH VALUE BETWEEN 5.5 AND 6.5. TOPSOIL SHALL CONTAIN BETWEEN 4% AND 8% ORGANIC MATTER OF TOTAL DRY WEIGHT AND SHALL CONFORM TO THE FOLLOWING GRADATION AND TEXTURE CLASS ABOVE.

TOPSOIL FOR LAWN, TREES, SHRUBS, & PERENNIALS

NOT TO SCALE

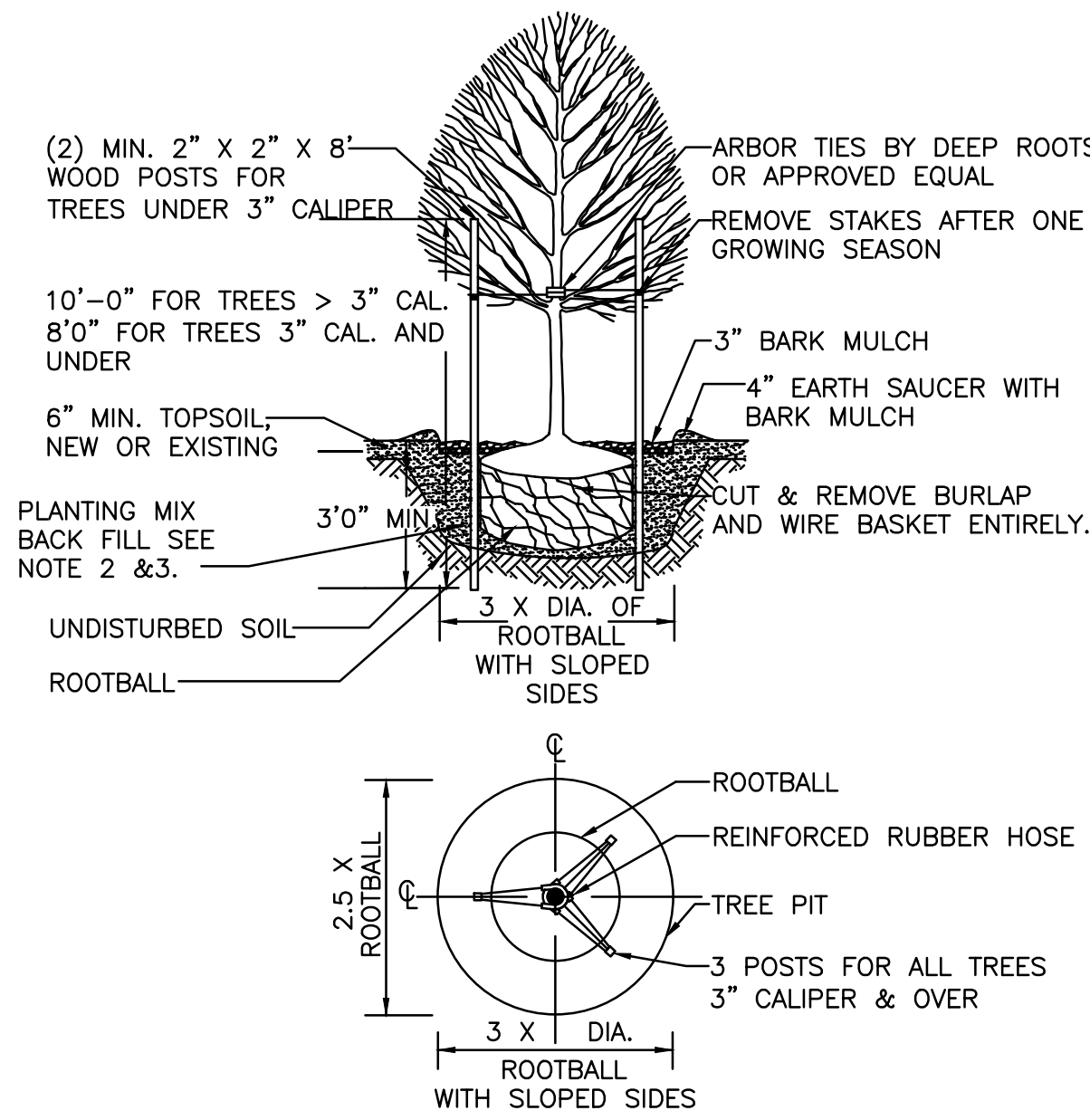
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EVERGREEN TREE DETAIL

NOT TO SCALE

1



DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

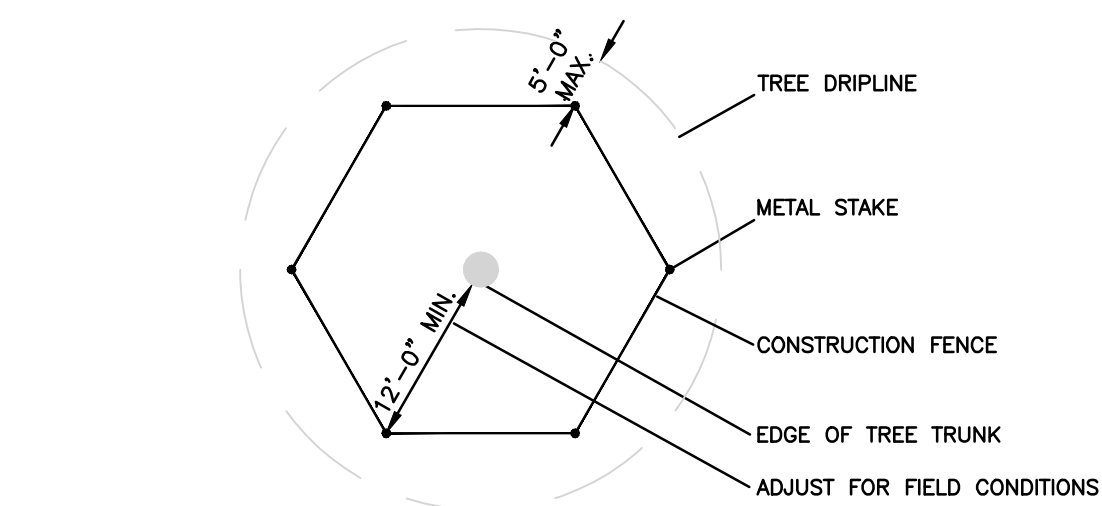
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NOTES

1. TREES SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS IT BORE TO NURSERY OR FIELD GRADE. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL TOP OF ROOTBALL AREA.
2. INSTALL THREE GUYS PER TREE; EQUALLY SPACED AROUND BALL.
3. ATTACH GUYS AT 2/3 HEIGHT OF TREE.
4. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
5. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.

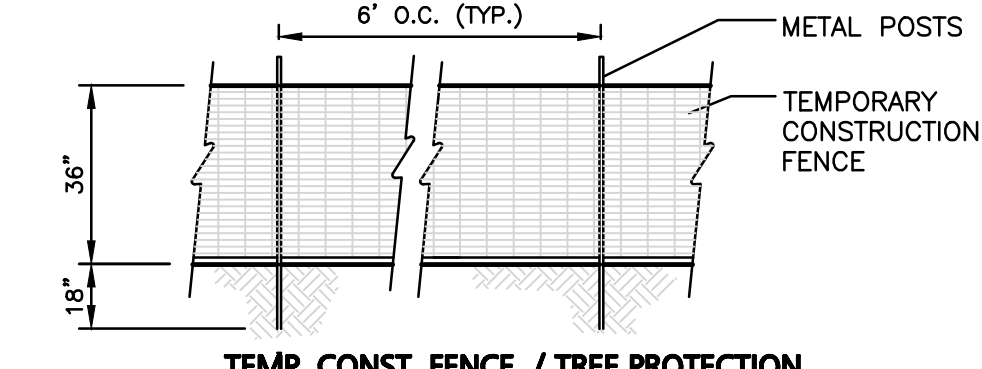
NOTES:

1. ALL TREES SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL ROOTBALL AREA.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.



NOTE:

1. CONSTRUCTION FENCE TO BE "VISUAL BARRIER FENCE" AS MANUFACTURED BY EXXON CHEMICAL COMPANY ATLANTA, GA; "KONTROL SAFETY FENCE" AS MANUFACTURED BY MIRAFI, CHARLOTTE, N.C. OR APPROVED EQUAL.
2. IF GROUPS OF TREES ARE TO BE PROTECTED, EXTEND FENCE AROUND PERIMETER TO CONFORM TO MINIMUM DIMENSIONS FOR TREE TRUNKS AND DRIPLINE.



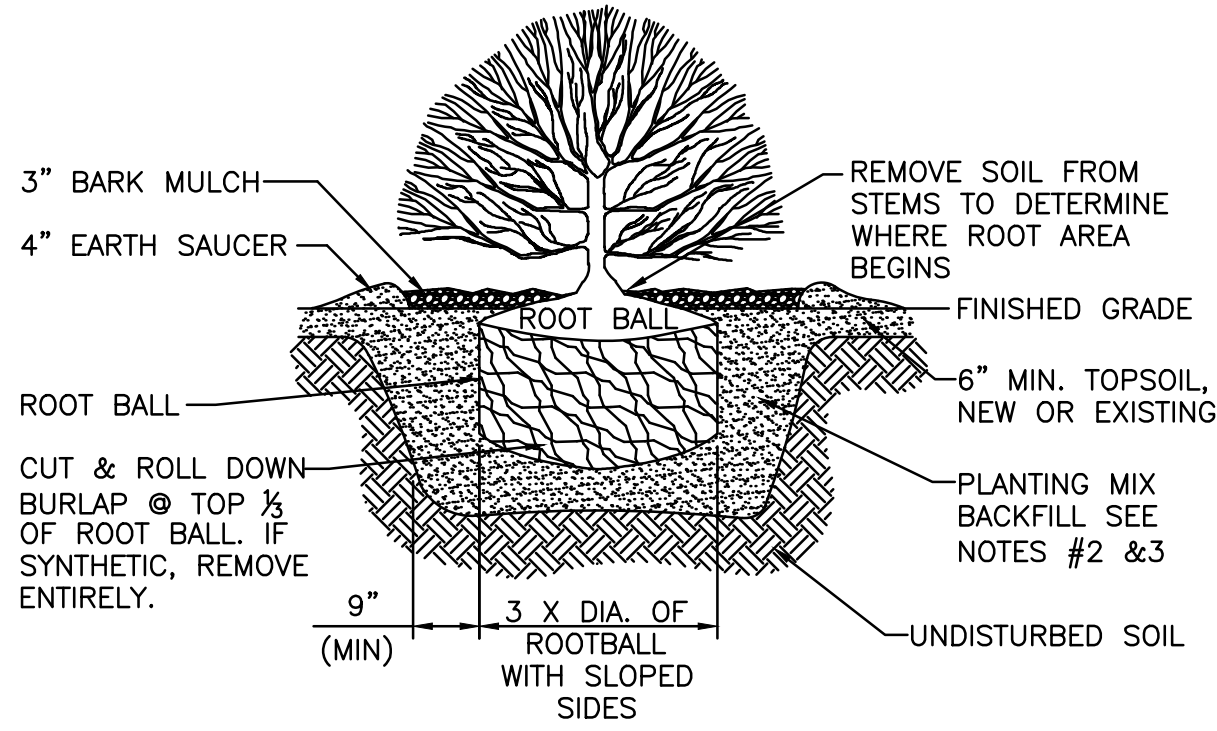
TEMP. CONST. FENCE / TREE PROTECTION

NOT TO SCALE

4

NOTES:

1. ALL SHRUBS SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. SET SHRUB 1"-2" ABOVE FINISH GRADE.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.
4. SHRUB BEDS TO HAVE 24" MIN. OF CONTINUOUS PLANTING SOIL.



SHRUB PLANTING DETAIL

NOT TO SCALE

5



REGISTERED LANDSCAPE ARCHITECT FOR
ALLEN & MAJOR ASSOCIATES, INC.

2	05/25/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW
REV	DATE	DESCRIPTION

APPLICANT/OWNER:

192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:

190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO.	2729-02	DATE:	10/23/2020
-------------	---------	-------	------------

SCALE:	NTS	DWG. NAME:	C2729-02
--------	-----	------------	----------

DESIGNED BY:	BCD	CHECKED BY:	BDJ
--------------	-----	-------------	-----

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
----------------	-----------

LANDSCAPE DETAILS

L-501

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AERIAL SITE PLAN:



ARB PACKAGE

MAY 18, 2021

DRAWING LIST

ARCHITECTURAL	
A1.00	OVERALL PLAN - BASEMENT
A1.01	OVERALL PLAN - FIRST FLOOR
A1.02	OVERALL PLAN - SECOND FLOOR
A1.05	OVERALL PLAN - THIRD FLOOR
A1.04	OVERALL PLAN - FOURTH FLOOR
A1.06	OVERALL PLAN - ROOF
A2.01	BUILDING ELEVATIONS
A9.01	STREET ELEVATIONS
A9.02	BANK CORNER RENDER
A9.03	COMMERCIAL CORNER RENDER
A9.04	ROOF DECK RENDER
A9.05	SOLAR STUDIES
A9.06	SOLAR STUDIES

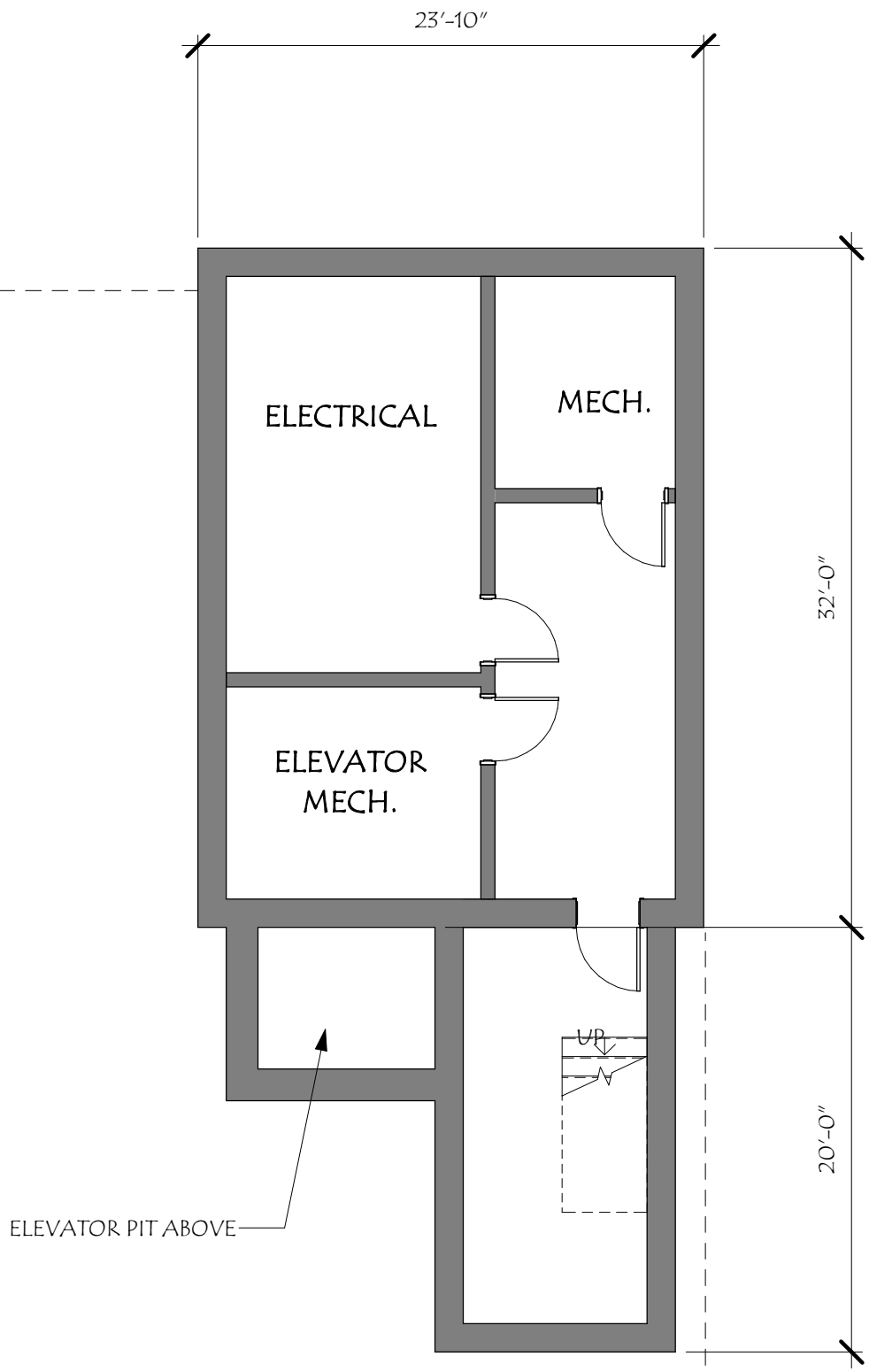
REVISION
DATE



200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

1 OVERALL PLAN - BASEMENT
1/8" = 1'-0"



Title:
OVERALL PLAN -
BASEMENT

A1.00

Scale:
Drawn By: PPS
Checked By: ALW
Project No.: 2020051
Date: 05/18/21

Revisions:		
#	Description	Date

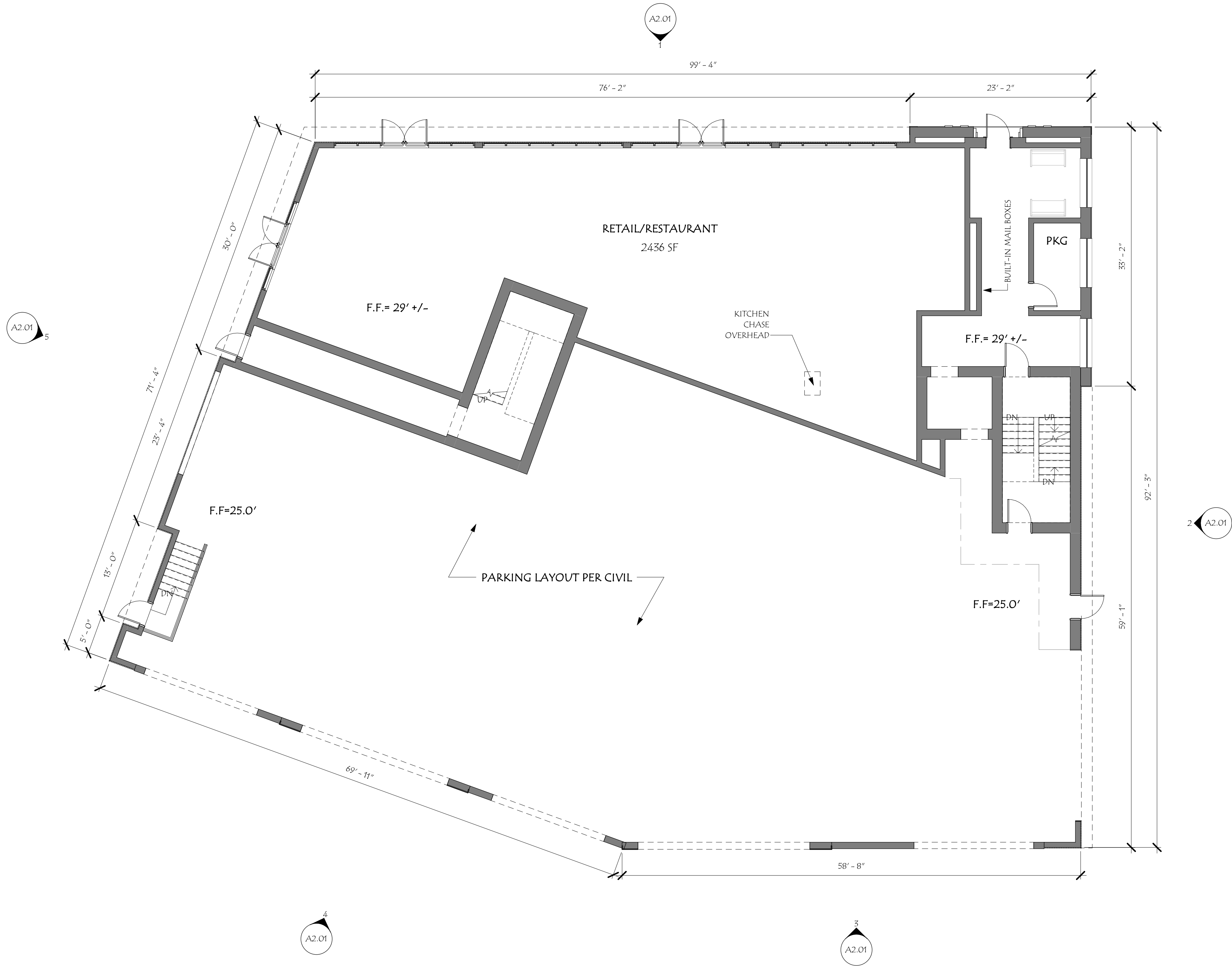
200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

NOT FOR
CONSTRUCTION



1 OVERALL PLAN - 1ST FLOOR
1/8" = 1'-0"



Title:
OVERALL PLAN -
FIRST FLOOR

A1.01

Scale:
Drawn By:
Checked By:
Project No.:
Date:

1/8" = 1'-0"
PPS
ALW
2020051
05/18/21

Revisions: #	Description	Date

200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

NOT FOR
CONSTRUCTION

NOT FOR
CONSTRUCTION

200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

Revisions:	#	Description	Date

1/8" = 1'-0"	PPS	ALW	2020051	05/18/21
Scale:	Drawn By:	Checked By:	Project No.:	Date:

Title: OVERALL PLAN - SECOND FLOOR	A1.02
--	-------

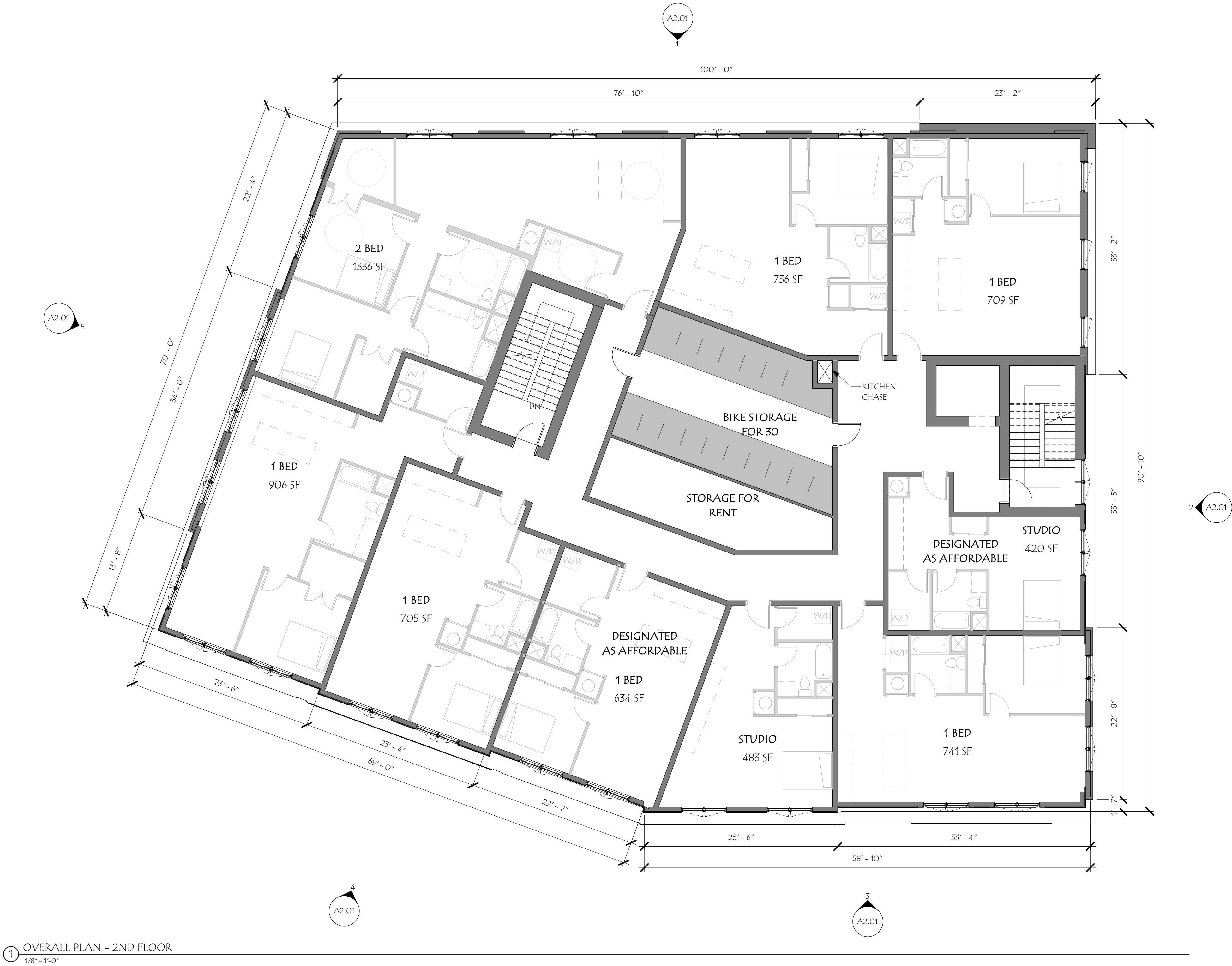
UNIT MATRIX:

	#	%
SECOND FLOOR:		
STUDIO	2 UNIT	22%
1 BED	6 UNITS	66%
2 BED	1 UNIT	11%

TOTAL:		
STUDIO	5 UNITS	21%
1 BED	16 UNITS	66%
2 BED	3 UNITS	13%

TOTAL 24 UNITS

NOTE:
PRELIMINARY UNIT INTERNAL LAYOUT SHOWN, FINAL LAYOUT MAY VARY



1 OVERALL PLAN - 2ND FLOOR
1/8" = 1'-0"

NOT FOR
CONSTRUCTION

200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

Revisions:		
#	Description	Date

Scale:	1/8" = 1'-0"
Drawn By:	PPS
Checked By:	ALW
Project No.:	2020051
Date:	05/18/21

Title:
OVERALL PLAN -
THIRD FLOOR

A1.03

UNIT MATRIX:

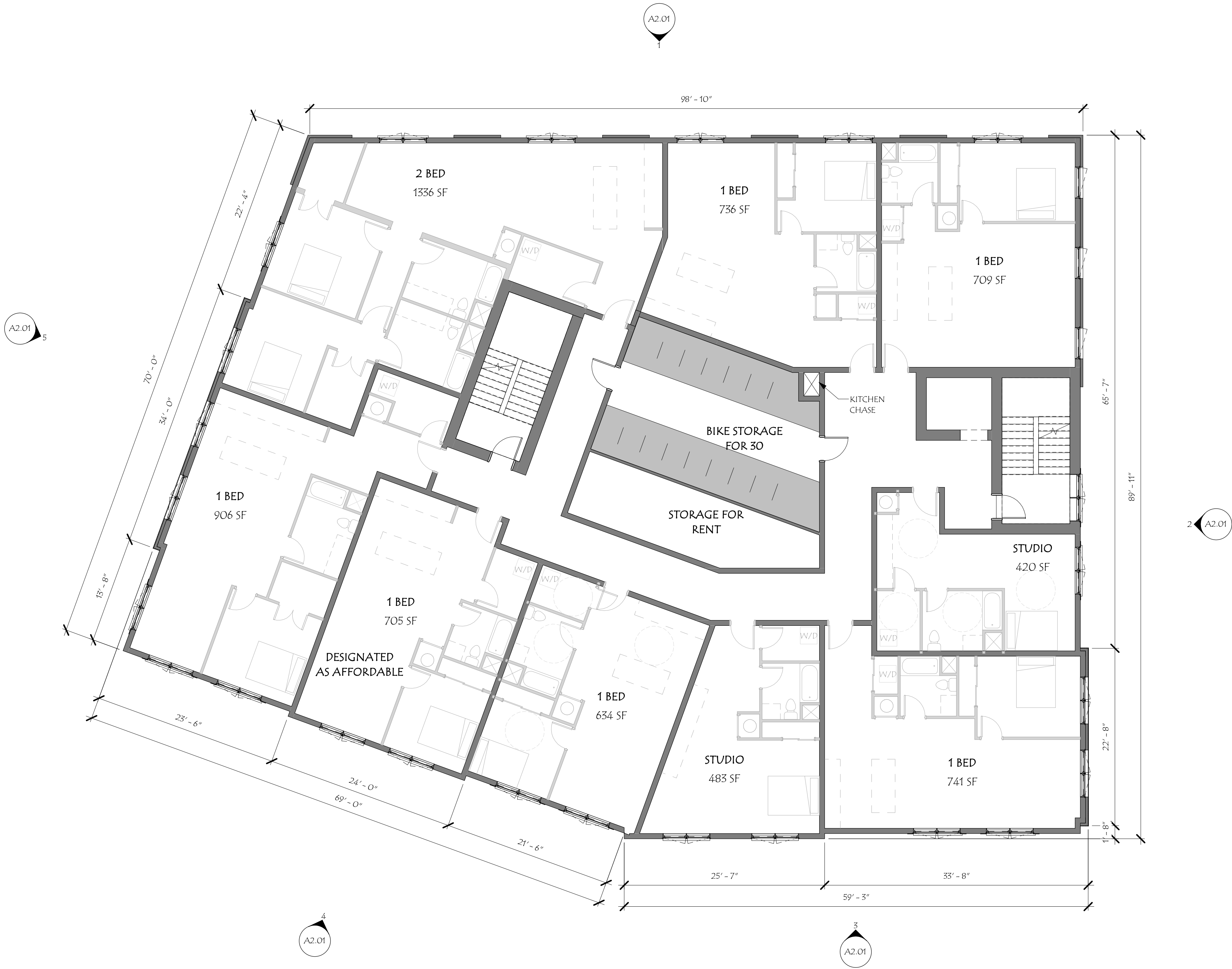
	#	%
THIRD FLOOR:		
STUDIO	2 UNIT	22%
1 BED	6 UNITS	66%
2 BED	1 UNIT	11%

TOTAL:		
STUDIO	5 UNITS	21%
1 BED	16 UNITS	66%
2 BED	3 UNITS	13%

TOTAL	24 UNITS
-------	----------

NOTE:
PRELIMINARY UNIT INTERNAL LAYOUT SHOWN, FINAL LAYOUT MAY VARY

1 OVERALL PLAN - 3RD FLOOR
1/8" = 1'-0"



NOT FOR
CONSTRUCTION

200 MASS AVE MIXED USE
190-200 MASSACHUSETTS AVE
ARLINGTON, MA

Revisions:	#	Description	Date

Scale:	1/8" = 1'-0"
Drawn By:	PPS
Checked By:	ALW
Project No.:	2020051
Date:	05/18/21

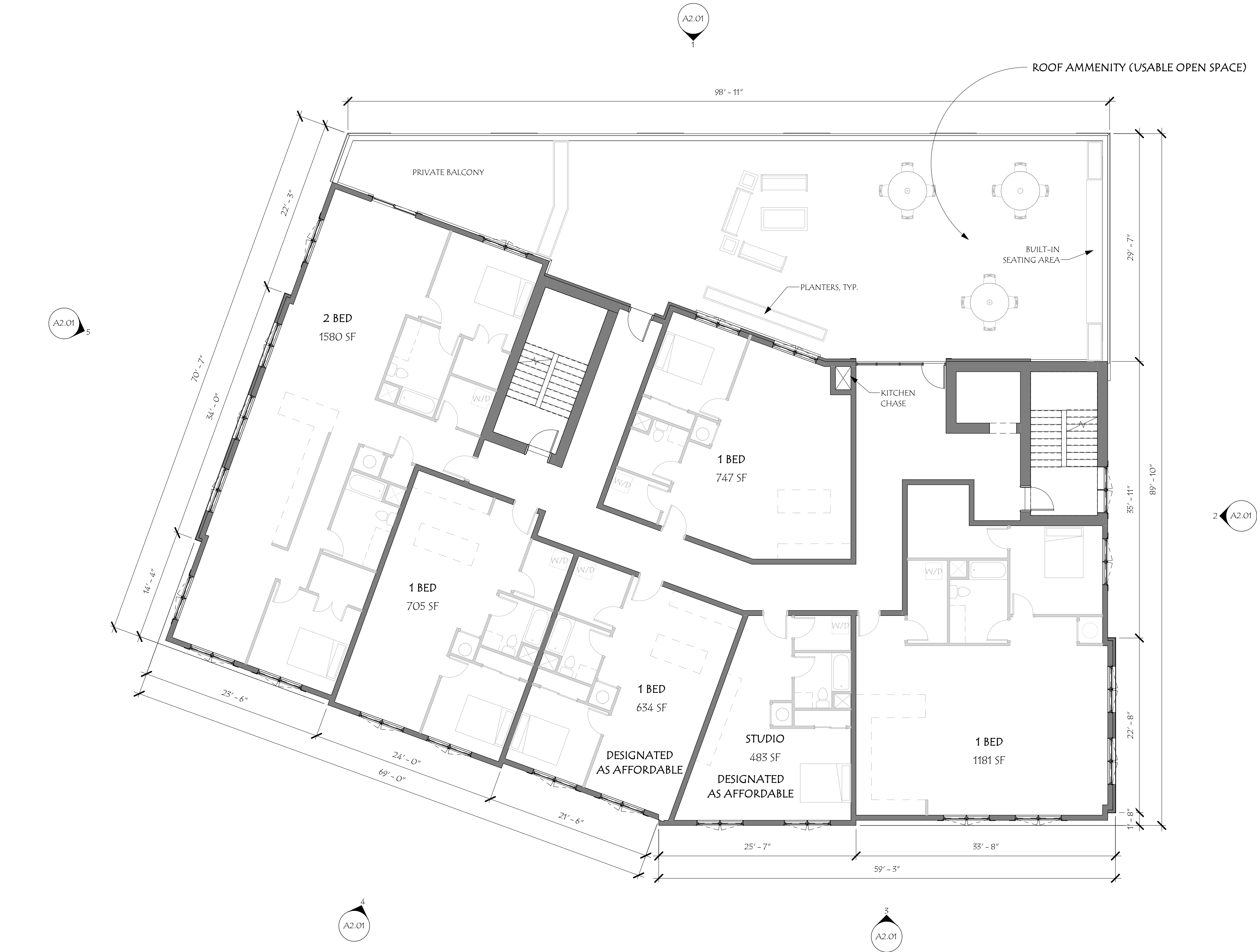
Title:
OVERALL PLAN -
FOURTH FLOOR

A1.04

UNIT MATRIX:

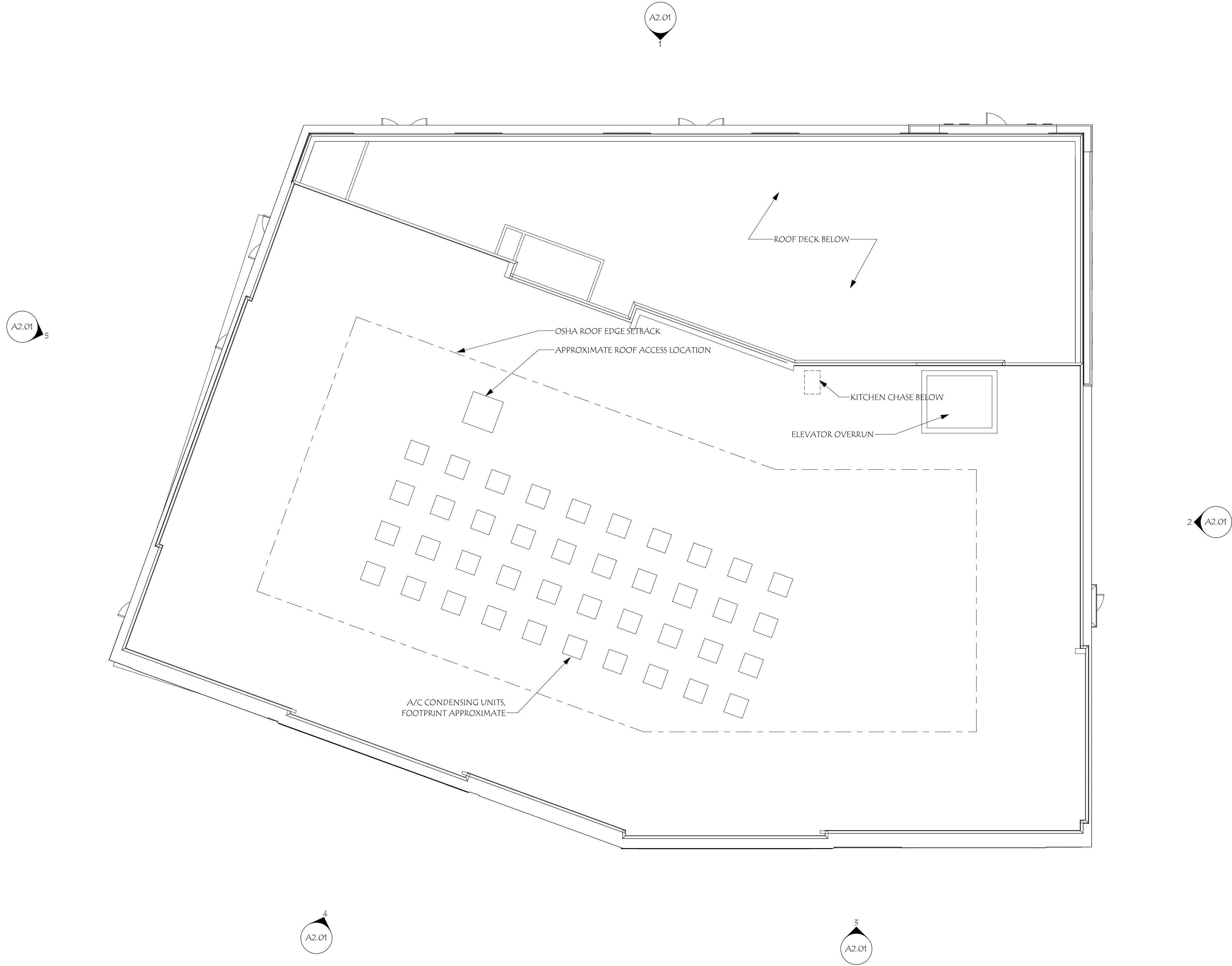
	#	%
FOURTH FLOOR:		
STUDIO	1 UNIT	17%
1 BED	4 UNITS	66%
2 BED	1 UNIT	17%
TOTAL:		
STUDIO	5 UNITS	21%
1 BED	16 UNITS	66%
2 BED	3 UNITS	13%
TOTAL	24 UNITS	

NOTE:
PRELIMINARY UNIT INTERNAL LAYOUT SHOWN, FINAL LAYOUT MAY VARY



1 OVERALL PLAN - 4TH FLOOR
1/8" = 1'-0"

1 OVERALL PLAN - ROOF
1/8" = 1'-0"



Title:
OVERALL PLAN -
ROOF

A1.06

Scale:
Drawn By: PPS
Checked By: ALW
Project No.: 2020051
Date: 05/18/21

Revisions: #	Description	Date

200 MASS AVE MIXED USE
190-200 MASSACHUSETTS AVE
ARLINGTON, MA

NOT FOR
CONSTRUCTION



② ELEVATION - 2
3/32" = 1'-0"

- MATERIAL NOTES:
- ◊ BRICK BASE TO MATCH EXISTING BRICK BANK.
 - ◊ PAINTED FIBER CEMENT PANEL OR CLAPBOARD, TYP. UPPER STORIES.
 - ◊ CORNICE/TRIM TO BE FIBER CEMENT OR AZEK WITH METAL FLASHING PAINTED TO MATCH.



④ ELEVATION - 4
3/32" = 1'-0"

③ ELEVATION - 3
3/32" = 1'-0"



① ELEVATION - 1
3/32" = 1'-0"



⑤ ELEVATION - 5
3/32" = 1'-0"

NOT FOR CONSTRUCTION

200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

Title:	BUILDING ELEVATIONS		A2.01	
Scale:	Drawn By:	Checked By:	Project No.:	Date:
3/32" = 1'-0"	PPS	ALW	2020051	05/18/21
Revisions:	#	Description	Date	

NOTE:
CONTEXT BUILDING HEIGHTS AND ELEVATIONS APPROXIMATED.

NOT FOR
CONSTRUCTION

200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA



3 CHANDLER STREET ELEVATION
1" = 20'-0"



2 LAKE STREET ELEVATION
1" = 20'-0"



1 MASS AVE STREET ELEVATION
1" = 20'-0"

Title: STREET ELEVATIONS	Scale:		Revisions:	
	Drawn By:	Checked By:	#	Description
A9.01	Project No.:		Date:	
	5/18/2021 5:59:17 PM			



200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

NOT FOR
CONSTRUCTION

Revisions:		
#	Description	Date

Scale:	PPS
Drawn By:	ALW
Checked By:	2020051
Project No.:	05/18/21
Date:	

Title:
BANK CORNER
RENDER

A9.02



200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

NOT FOR
CONSTRUCTION

Revisions:		Date
#	Description	

Scale:	PPS
Drawn By:	ALW
Checked By:	2020051
Project No.:	05/18/21
Date:	

Title:
COMMERCIAL
CORNER RENDER

A9.03



200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

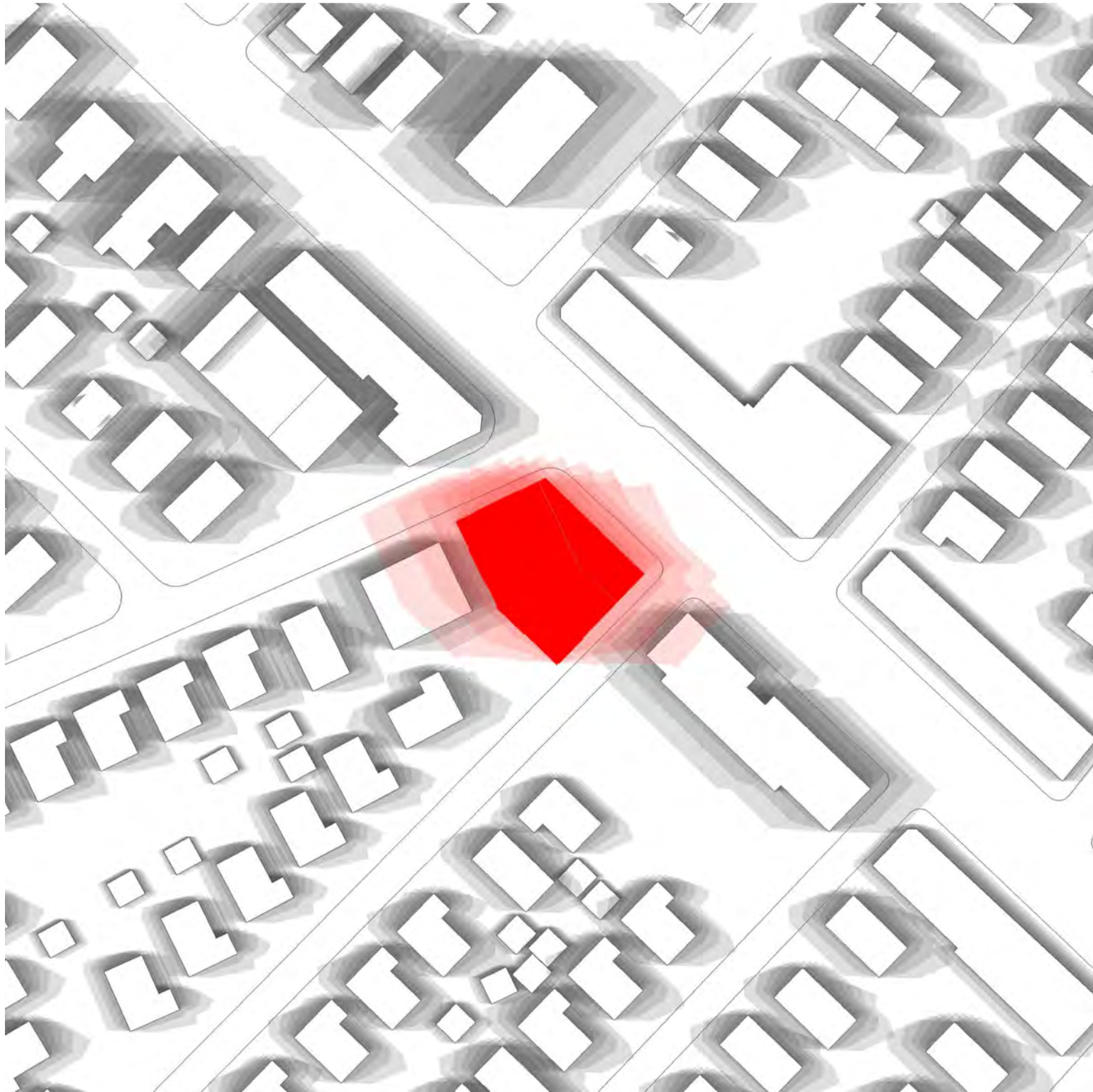
NOT FOR
CONSTRUCTION

MARKET
SQUARE
ARCHITECTS
104 Congress St., STE 203
Portsmouth, NH 03801
PH: 603.501.0202

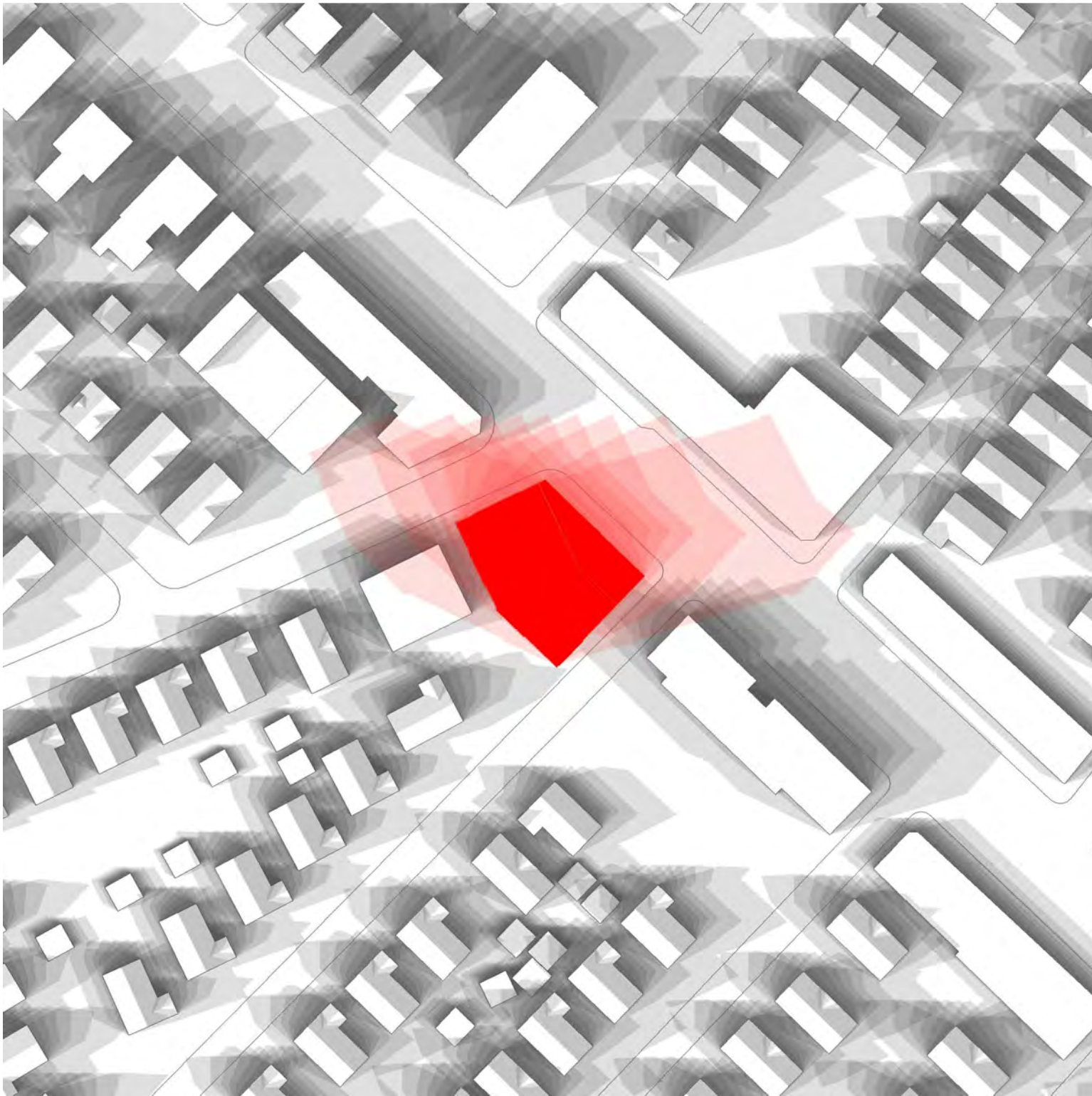
Revisions:		Date
#	Description	

Scale:	PPS
Drawn By:	ALW
Checked By:	2020051
Project No.:	05/18/21
Date:	

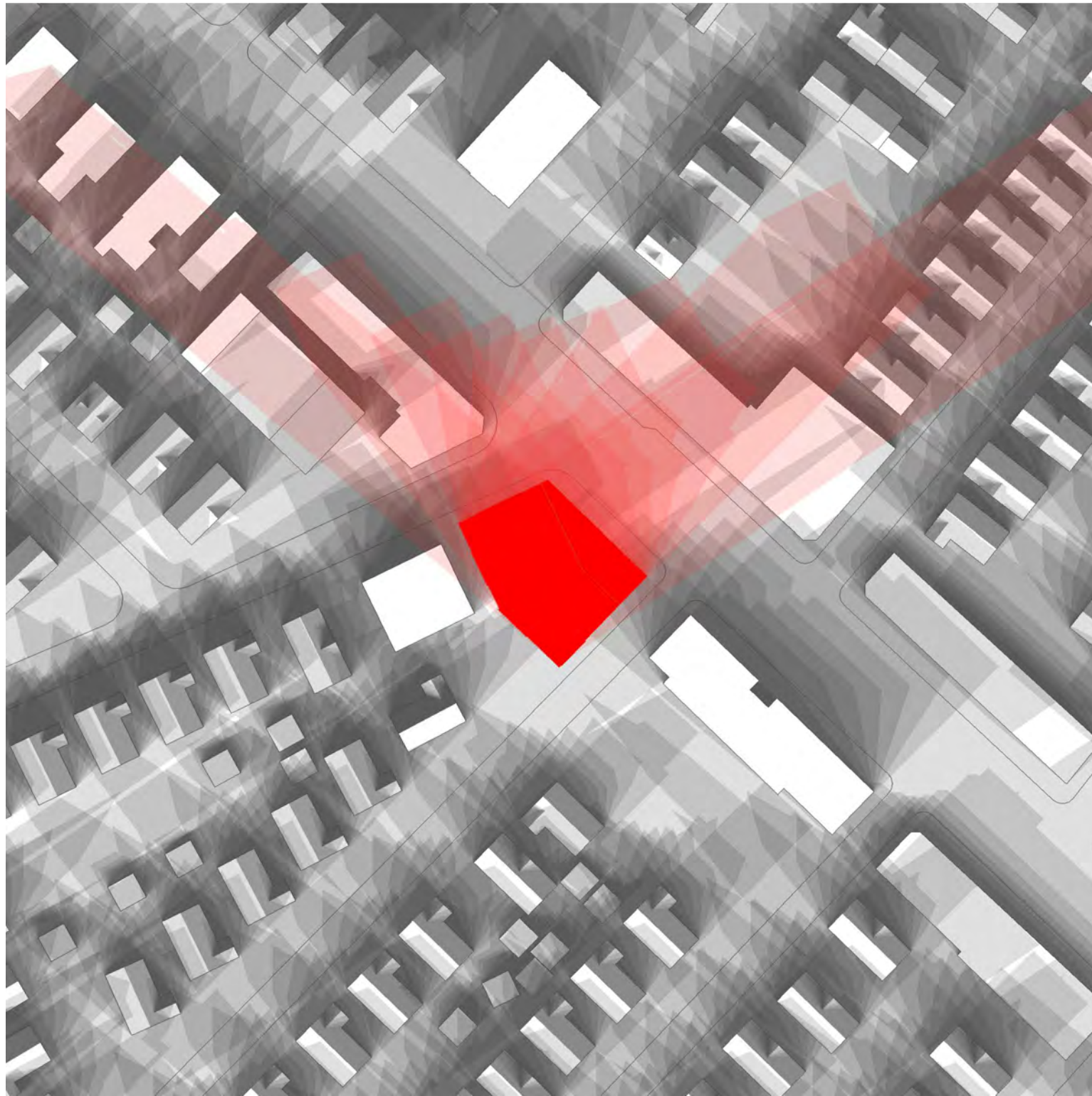
Title:	ROOF DECK RENDER
	A9.04



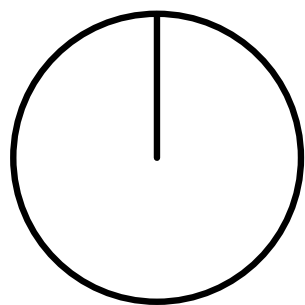
SUMMER
8:00AM - 4:00PM UTC-5



SPRING/FALL
8:00AM - 4:00PM UTC-5



WINTER
8:00AM - 4:00PM UTC-5



NOTE:
THE BUILDING AND LANDSCAPE SHADOWS ILLUSTRATED IN THE RENDERINGS BELOW ARE DIGITALLY GENERATED AND THEORETICAL REPRESENTATIONS OF THOSE SHADOWS CAST AT A SPECIFIC MOMENT IN TIME ON A SPECIFIC DAY. WHILE ACCURATE TO THE INPUT CALENDAR AND SUN LOCATION DATA, THE ACTUAL PERCEPTION OF SHADOWS INCLUDING THEIR SIZE, SHAPE AND INTENSITY OR DARKNESS, MAY BE SUBJECTIVE AND VARIABLE TO THE SPECIFIC OBSERVER. AS SUCH, THIS INFORMATION SHOULD BE UTILIZED AS GENERAL COMMENTARY, AND CAUSE FOR FURTHER DISCUSSION OR STUDY AS NEEDED.

200 MASS AVE MIXED USE

190-200 MASSACHUSETTS AVE
ARLINGTON, MA

NOT FOR
CONSTRUCTION



Revisions:			
#	Description	Date	

Scale:	PPS
Drawn By:	ALW
Checked By:	2020051
Project No.:	03/10/21
Date:	

Title:	SOLAR STUDIES
	A9.05



Changes to Civil Plans;

1. Garage drive aisle reduced from 24 to 22 ft. Relief requested from ARB for reduction. Allowed for an increase in commercial space to 2,436 sf.
2. Parking space dimensions reduced to be 8 ft wide by 18 ft long. Relief requested from ARB for reduction. Figure Provided for turning movements.
3. Stairs and sidewalk connection along south western property line removed. Landscaped open space increased to 6.6% of residential floor area, and 11.1% of lot area. This change now has the proposed project result in approximately 1,034 square feet of impervious material being replaced with landscaped areas.
4. An additional EV space has been added.
5. Short term bike spaces have been relocated into the garage area.
6. FAR reduced to 3.2, deck space not included per definition 5.3.22

Traffic Impact Assessment

Proposed Mixed-Use Development

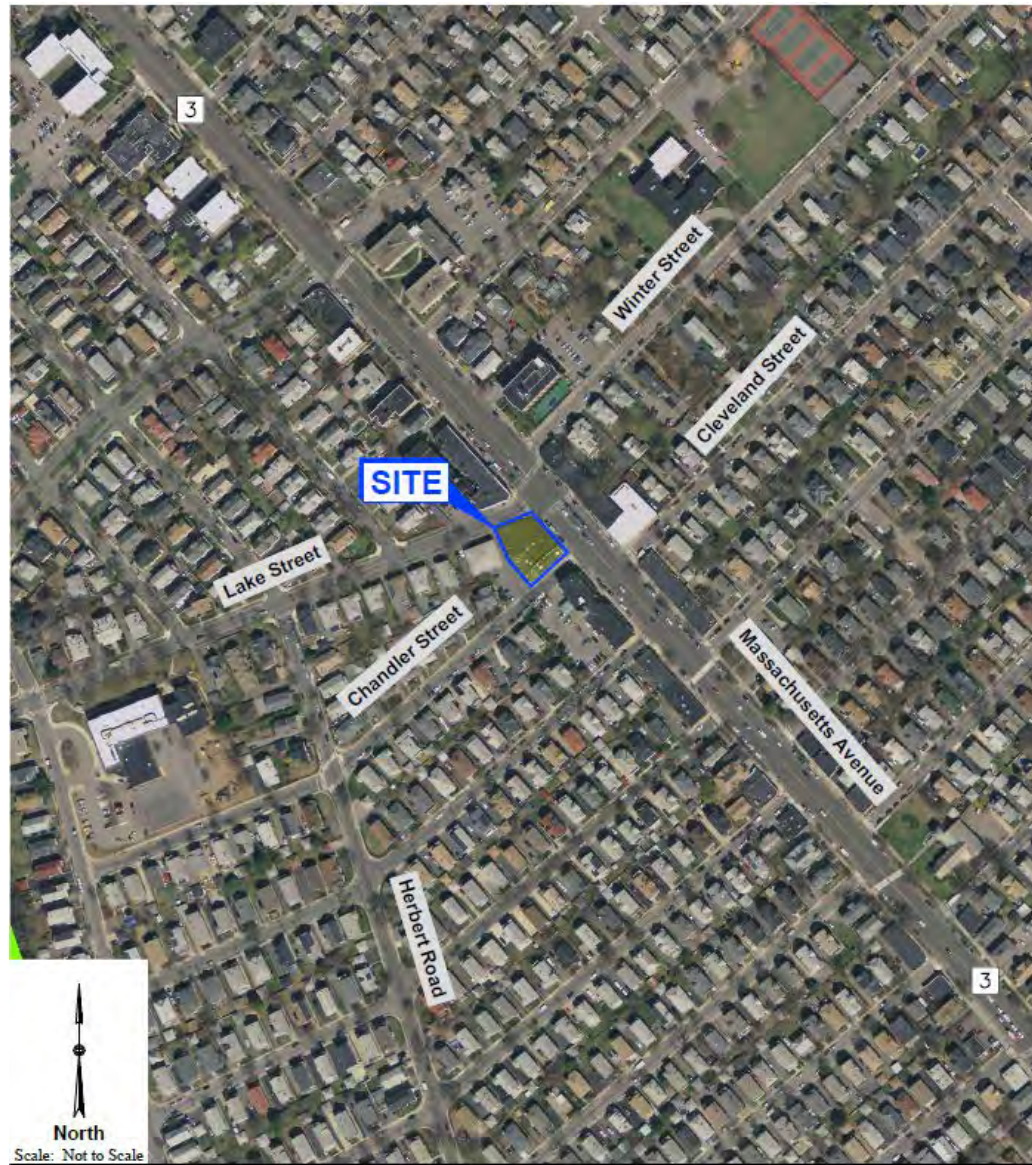
Robert J. Michaud, P.E., Managing Principal

Daniel A. Dumais, P.E. Sr. Project Manager

June 7, 2021

MDM

Site Location



Alternative Transportation Facilities



Trip Generation Summary

Period	Residential ¹	Retail Use ²	Total Trips
<i>Weekday Morning Peak-Hour:</i>			
Enter	2	1	3
<u>Exit</u>	<u>5</u>	<u>1</u>	<u>6</u>
Total	7	2	9
<i>Weekday Evening Peak-Hour:</i>			
Enter	5	3	8
<u>Exit</u>	<u>3</u>	<u>4</u>	<u>7</u>
Total	8	7	15
<i>Daily</i>	102	66	168

¹Based on ITE LUC 221 (Multifamily Housing (Mid-Rise)) applied to 37 Units adjusted to reflect 50% non-auto mode share per US Census tract data.

²Based on ITE LUC 820 (Shopping Center) applied to 1,735 sf.

Trip Generation Comparison

Period	Existing Uses ¹	Proposed Use ²	Net New Trips
<i>Weekday Morning Peak-Hour:</i>			
Enter	6	3	-3
<u>Exit</u>	<u>4</u>	<u>6</u>	<u>+2</u>
Total	10	9	-1
<i>Weekday Evening Peak-Hour:</i>			
Enter	19	8	-11
<u>Exit</u>	<u>21</u>	<u>7</u>	<u>-14</u>
Total	40	15	-25
<i>Daily</i>	396	168	-228

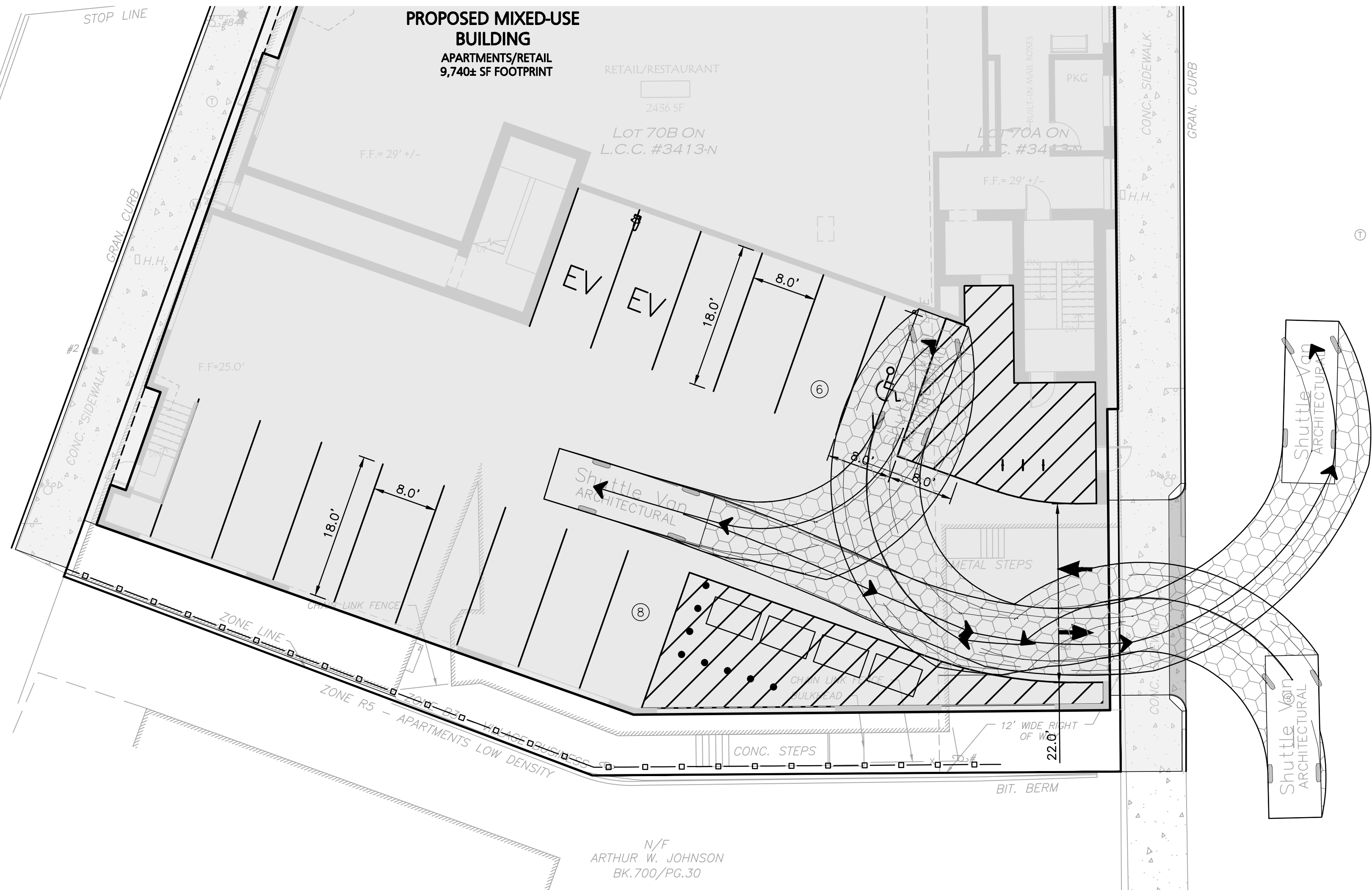
¹Based on ITE LUC 820 (Shopping Center) applied to 10,500 sf.

²Based on ITE LUC 221 (Multifamily Housing (Mid-Rise)) applied to 37 Units adjusted to reflect 50% non-auto mode share per US Census tract data and ITE LUC 820 (Shopping Center) applied to 1,735 sf.

R:\PROJECTS\2729-02\CIVIL\DRAWINGS\CURRENT\C-2729-02_GARAGE_TURNING.DWG

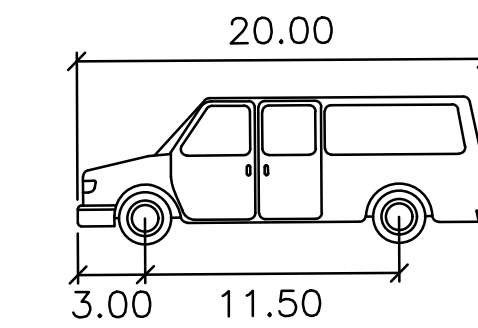


LAKE STREET
(PUBLIC - VARIABLE WIDTH)
GRAN. CURB
DOUBLE YELLOW LINE



N/F
ARTHUR W. JOHNSON
BK.700/PG.30

CHANDLER STREET
(PUBLIC - VARIABLE WIDTH)
GRAN. CURB



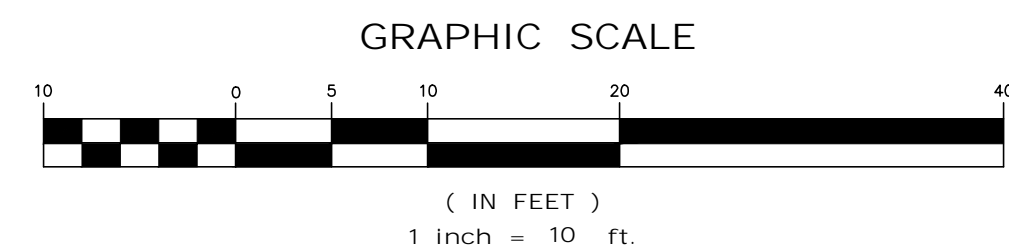
Shuttle Van

Width : 6.50
Track : 6.50
Lock to Lock Time : 6.0
Steering Angle : 31.5

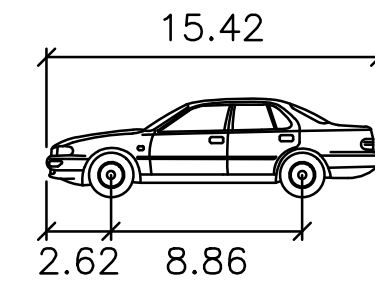
VEHICLE PROFILE
NOT TO SCALE

NOTES

1. WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS OR CONDITIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR. ALL SITE ITEMS SHALL BE LAID OUT AND AS BUILT BY A LICENSED LAND SURVEYOR.
2. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.



CHANDLER STREET
(PUBLIC - VARIABLE WIDTH)
GRAN. CURB



VOLKSWAGON JETTA

Width : 5.58
Track : 5.58
Lock to Lock Time : 6.0
Steering Angle : 33.75

VEHICLE PROFILE
NOT TO SCALE

**PROGRESS PRINT
ISSUED FOR REVIEW**
MAY 26, 2021

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

2	05/25/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW
REV	DATE	DESCRIPTION

APPLICANT/OWNER:

192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:

190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO. 2729-02 DATE: 10/23/2020

SCALE: 1" = 10' DWG. NAME: C2729-02

DESIGNED BY: ARM CHECKED BY: BDJ

PREPARED BY:



**ALLEN & MAJOR
ASSOCIATES, INC.**

civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2896

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DRAWING TITLE:

GARAGE TURNING PLAN

SHEET No.

FIG-1

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MUNICIPAL PARKING SUMMARY

LOCATION	APPROX. NUMBER OF SPACES
RUSSELL COMMON MUNICIPAL LOT	220
MASSACHUSETTS AVENUE	120

LEGEND

PROPERTY LINE	—
STREET PARKING	—
RUSSELL COMMON LOT	—

NOTES

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1-888-344-7233

SITE

GRAPHIC SCALE



(IN FEET)
1 Inch = 200 ft.

PROGRESS PRINT
ISSUED FOR REVIEW
MAY 26, 2021

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

2	05/25/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW
REV	DATE	DESCRIPTION

APPLICANT/OWNER:
192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:
190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO. 2729-02 DATE: 10/23/2020

SCALE: 1" = 200' DWG. NAME: C2729-02

DESIGNED BY: ARM CHECKED BY: BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2896
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DRAWING TITLE: MUNICIPAL PARKING FIGURE SHEET No. FIG-2

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R:\PROJECTS\2729-02\CIVIL\DRAWINGS\CURRENT\C-2729-02_PARKING FIGURE.DWG

DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

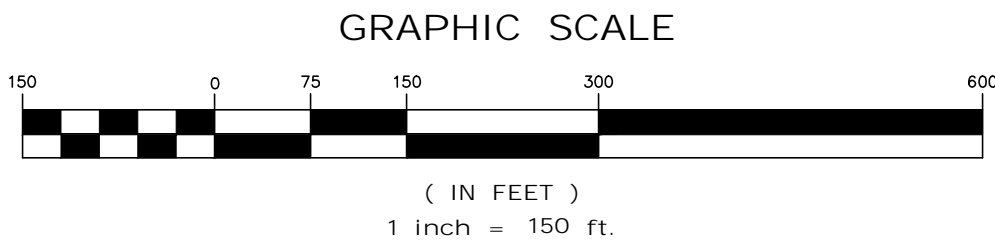


MUNICIPAL PARKING SUMMARY	
LOCATION	APPROX. NUMBER OF SPACES
RUSSELL COMMON MUNICIPAL LOT	220
MASSACHUSETTS AVENUE	120

LEGEND	
PROPERTY LINE	
STREET PARKING	
RUSSELL COMMON LOT	

NOTES

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PROGRESS PRINT
ISSUED FOR REVIEW
MAY 26, 2021

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
2	05/25/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW

APPLICANT/OWNER:
192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:
190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO.	2729-02	DATE:	10/23/2020
SCALE:	1" = 150'	DWG. NAME:	C2729-02
DESIGNED BY:	ARM	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR
ASSOCIATES, INC.
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE: MASSACHUSETTS AVENUE PARKING FIGURE	SHEET No. FIG-3
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Issued: March 10, 2021

Revised: May 25, 2021

Jennifer Raitt
Director of Planning & Community
Development
730 Massachusetts Ave
Arlington, MA 02476

RE: Mixed-Use Redevelopment
Drainage Summary Letter
190 & 192-200 Massachusetts Ave
Arlington, MA 02476

Dear Ms. Raitt,

On behalf of our Client, 192-200 Massachusetts Ave, LLC, Allen & Major Associates (A&M) is pleased to provide this letter in support of the Special Permit application for the Mixed-Use Redevelopment project at 190 & 192-200 Massachusetts Ave. This letter will summarize the changes to the stormwater management system which are proposed as part of the redevelopment efforts.

Existing Conditions

The site is located on the corner of Lake Street and Massachusetts Avenue and Chandler Street and Massachusetts Avenue. There is an existing curb cut to the parcel located off of Chandler Street. The project comprised of two property's, identified on the City tax Map 6, Block 3, Lots 1A and 1B. Both lots are predominantly covered by an existing brick building. Elevations onsite range from elevation 29 to elevation 24. Elevation 24 is the low point on-site located at the existing curb cut along Chandler Street, and elevation 29 runs through the sidewalk along Mass Ave. The majority of the stormwater from the site discharges through roof drain connections to the municipal system. A review of the NRCS soil report for Middlesex County indicates that the soil onsite is considered Merrimac-Urban Land which has a Hydrologic Soil Group rating of an "A". A copy of the Existing Watershed Plan is included herewith.

Proposed Conditions

The project, proposes to demolish a portion of the existing structure to construct a 5-story, 9,740 square foot Mixed-Use building with apartment and retail uses. There are 14 parking stalls proposed on the first level. The stormwater management system will be improved with a new drainage pipe connection. The quantity of stormwater runoff will be reduced with the installation of landscaped areas on-site. The proposed work will result in approximately 1,034 square feet of impervious material being replaced with landscaped areas.

Runoff flows were estimated for both pre and post development conditions using HydroCAD 10.00 software, at a specific "Study Point" (SP-1). Study Point 1 is the flows that will enter the municipal drainage system. The table below shows that the project causes a reduction in the peak rate of runoff and volume of stormwater leaving the site at the Study Point. Copies of the HydroCAD worksheets and Watershed Plans are included herewith.

STUDY POINT #1 (flow to municipal system)			
	2-Year	10-Year	100-Year
Existing Flow (CFS)	0.83	1.27	2.31
Proposed Flow (CFS)	0.74	1.20	2.26
Decrease (CFS)	0.09	0.07	0.05
Existing Volume (CF)	2,781	4,327	8,025
Proposed Volume (CF)	2,296	3,804	7,466
Decrease (CF)	485	523	559

The surface water drainage requirements of the Town of Arlington Zoning Bylaw Environmental Design Review Standards have been reviewed and met with the proposed design. The proposed project will introduce landscaped areas to the site to reduce the impervious area. The Town of Arlington, Article 15 Stormwater Mitigation, shall not apply as the proposed development will introduce a reduction in impervious area. However, with the proposed landscaped areas the project will reduce the runoff rates for all design storms, and comply with this bylaw.

Summary

As shown in the table above, the proposed development will have a positive impact on the stormwater management system by reducing the rate and volume of stormwater runoff from the site.

Very truly yours,

ALLEN & MAJOR ASSOCIATES, INC.

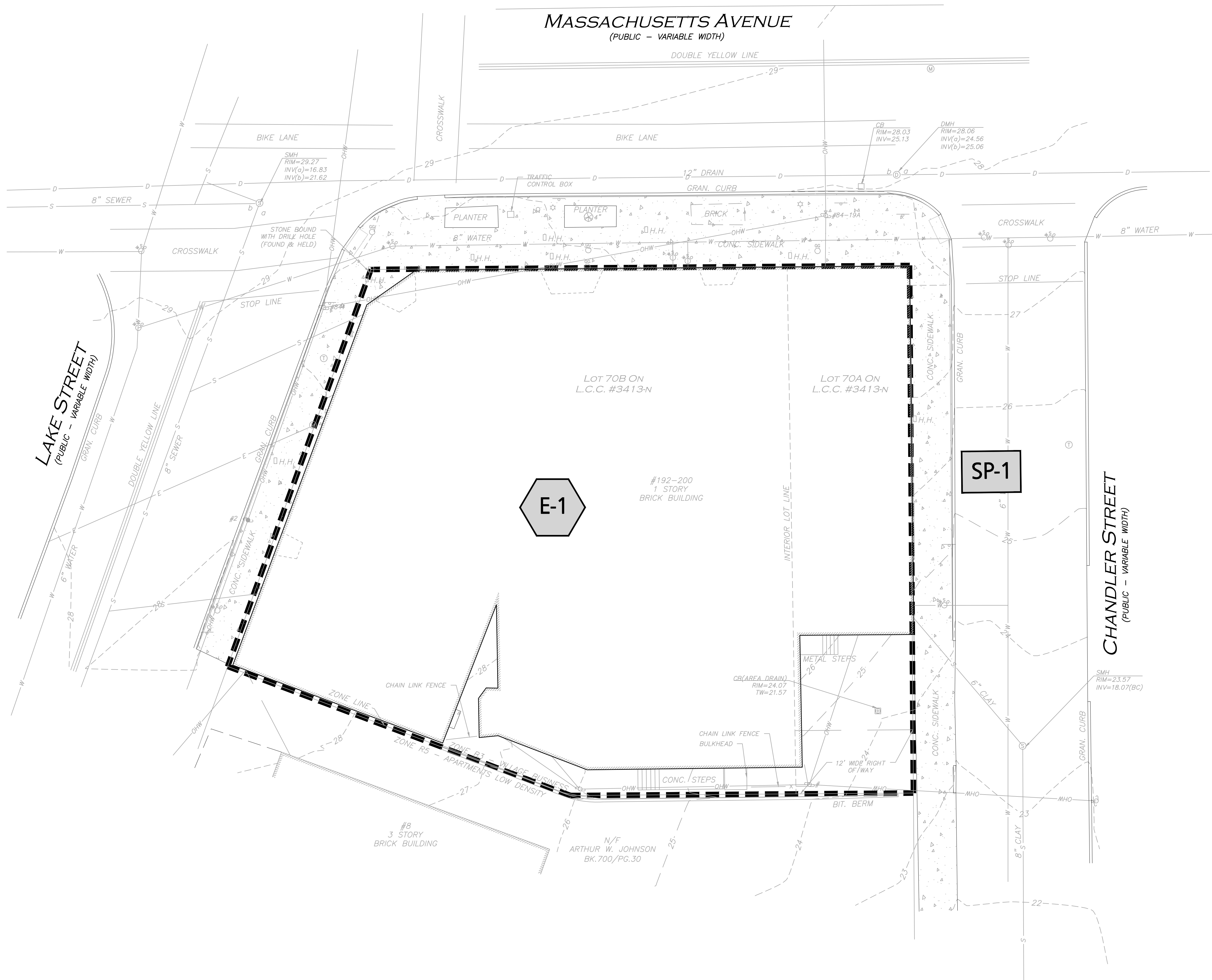
Aaron Mackey, PE
Project Engineer



Attachments:

1. Existing Watershed Plan
2. Proposed Watershed Plan
3. Pre development HydroCAD Calculations
4. Post development HydroCAD Calculations
5. Extreme Precipitation Tables
6. NRCS Soil Report

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LEGEND

EXISTING WATERSHED - - - - -

SUBCATCHMENT BOUNDARY - - - - -

SUBCATCHMENT LABEL **E-1**

1	03/10/2021	ISSUED FOR ARB REVIEW
REV	DATE	DESCRIPTION

APPLICANT/OWNER:
192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:
190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO. 2729-02 DATE: 10/23/2020

SCALE: 1" = 10' DWG. NAME: C2729-02

DESIGNED BY: ARM CHECKED BY: BDJ

PREPARED BY:

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civil engineering • land surveying
environmental consulting • landscape architecture
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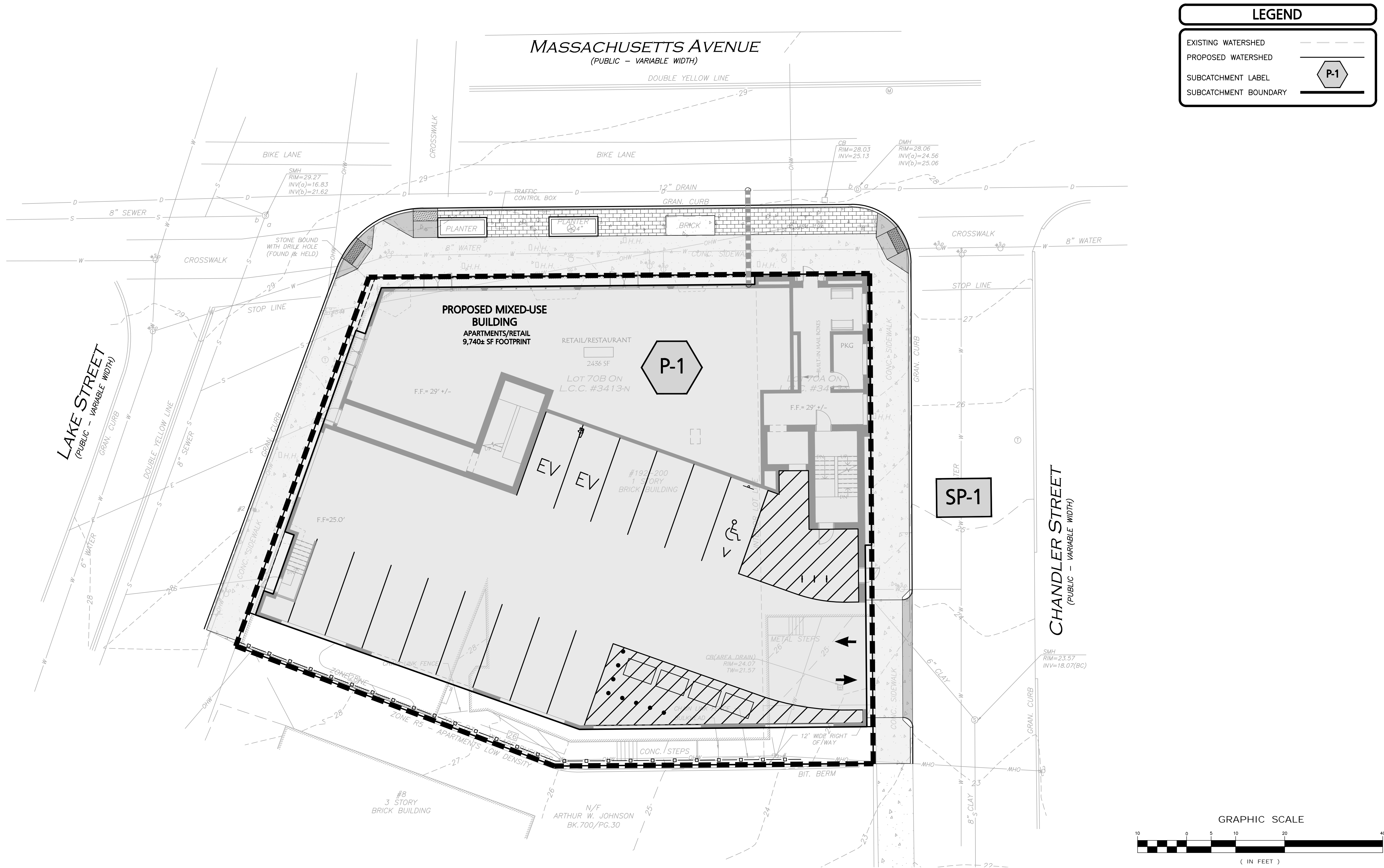
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DRAWING TITLE: EXISTING WATERSHED PLAN SHEET No. EWP

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LEGEND

EXISTING WATERSHED
PROPOSED WATERSHED
SUBCATCHMENT LABEL
SUBCATCHMENT BOUNDARY

P-1

2	04/23/2021	REVISED FOR ARB REVIEW
1	03/10/2021	ISSUED FOR ARB REVIEW
REV	DATE	DESCRIPTION

APPLICANT/OWNER:
192-200 MASSACHUSETTS AVE, LLC
455 MASSACHUSETTS AVE, STE 1
ARLINGTON, MA 02474

PROJECT:
190 & 192-200
MASSACHUSETTS AVE
ARLINGTON, MA 02476

PROJECT NO.	2729-02	DATE:	10/23/2020
SCALE:	1" = 10'	DWG. NAME:	C2729-02
DESIGNED BY:	ARM	CHECKED BY:	BDJ

PREPARED BY:

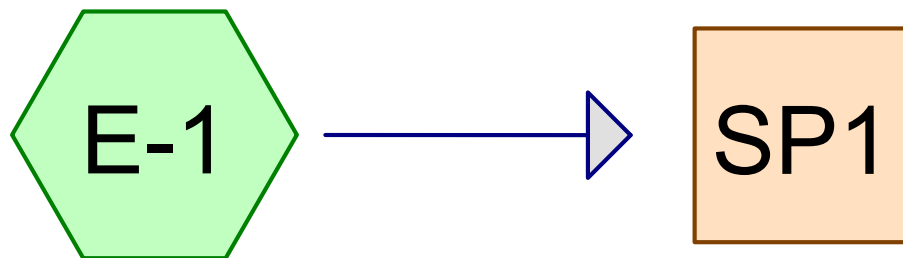
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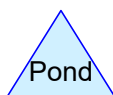
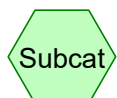
DRAWING TITLE:	SHEET No.
PROPOSED WATERSHED PLAN	PWP

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Subcat E-1

Study Point 1



2729-02_Existing-Conditions

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,238	98	Paved parking, HSG A (E-1)
9,896	98	Roofs, HSG A (E-1)
11,134	98	TOTAL AREA

2729-02_Existing-Conditions

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Page 3

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
11,134	HSG A	E-1
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
11,134		TOTAL AREA

2729-02_Existing-Conditions

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Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
1,238	0	0	0	0	1,238	Paved parking	E-1
9,896	0	0	0	0	9,896	Roofs	E-1
11,134	0	0	0	0	11,134	TOTAL AREA	

2729-02_Existing-Conditions

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Page 5

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Subcat E-1

Runoff Area=11,134 sf 100.00% Impervious Runoff Depth=3.00"

Tc=5.0 min CN=98 Runoff=0.83 cfs 2,781 cf

Reach SP1: Study Point 1

Inflow=0.83 cfs 2,781 cf

Outflow=0.83 cfs 2,781 cf

Total Runoff Area = 11,134 sf Runoff Volume = 2,781 cf Average Runoff Depth = 3.00"
0.00% Pervious = 0 sf 100.00% Impervious = 11,134 sf

2729-02_Existing-Conditions

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Type III 24-hr 2-Year Rainfall=3.23"

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Summary for Subcatchment E-1: Subcat E-1

Runoff = 0.83 cfs @ 12.07 hrs, Volume= 2,781 cf, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
1,238	98	Paved parking, HSG A
9,896	98	Roofs, HSG A
11,134	98	Weighted Average
11,134		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

2729-02_Existing-Conditions

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Type III 24-hr 2-Year Rainfall=3.23"

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Summary for Reach SP1: Study Point 1

Inflow Area = 11,134 sf, 100.00% Impervious, Inflow Depth = 3.00" for 2-Year event
Inflow = 0.83 cfs @ 12.07 hrs, Volume= 2,781 cf
Outflow = 0.83 cfs @ 12.07 hrs, Volume= 2,781 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

2729-02_Existing-Conditions

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Type III 24-hr 10-Year Rainfall=4.90"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Subcat E-1

Runoff Area=11,134 sf 100.00% Impervious Runoff Depth=4.66"

Tc=5.0 min CN=98 Runoff=1.27 cfs 4,327 cf

Reach SP1: Study Point 1

Inflow=1.27 cfs 4,327 cf

Outflow=1.27 cfs 4,327 cf

Total Runoff Area = 11,134 sf Runoff Volume = 4,327 cf Average Runoff Depth = 4.66"
0.00% Pervious = 0 sf 100.00% Impervious = 11,134 sf

2729-02_Existing-Conditions

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment E-1: Subcat E-1

Runoff = 1.27 cfs @ 12.07 hrs, Volume= 4,327 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
1,238	98	Paved parking, HSG A
9,896	98	Roofs, HSG A
11,134	98	Weighted Average
11,134		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

2729-02_Existing-Conditions

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Reach SP1: Study Point 1

Inflow Area = 11,134 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.27 cfs @ 12.07 hrs, Volume= 4,327 cf
Outflow = 1.27 cfs @ 12.07 hrs, Volume= 4,327 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

2729-02_Existing-Conditions

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Type III 24-hr 100-Year Rainfall=8.89"

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Page 11

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE-1: Subcat E-1

Runoff Area=11,134 sf 100.00% Impervious Runoff Depth=8.65"

Tc=5.0 min CN=98 Runoff=2.31 cfs 8,025 cf

Reach SP1: Study Point 1

Inflow=2.31 cfs 8,025 cf

Outflow=2.31 cfs 8,025 cf

Total Runoff Area = 11,134 sf Runoff Volume = 8,025 cf Average Runoff Depth = 8.65"
0.00% Pervious = 0 sf 100.00% Impervious = 11,134 sf

2729-02_Existing-Conditions

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Type III 24-hr 100-Year Rainfall=8.89"

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Summary for Subcatchment E-1: Subcat E-1

Runoff = 2.31 cfs @ 12.07 hrs, Volume= 8,025 cf, Depth= 8.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
1,238	98	Paved parking, HSG A
9,896	98	Roofs, HSG A
11,134	98	Weighted Average
11,134		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

2729-02_Existing-Conditions

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Type III 24-hr 100-Year Rainfall=8.89"

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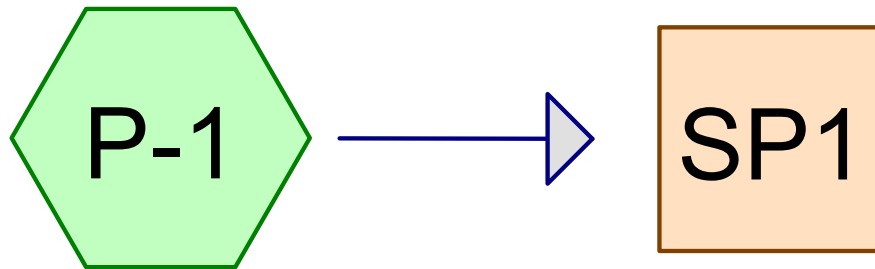
Summary for Reach SP1: Study Point 1

Inflow Area = 11,134 sf, 100.00% Impervious, Inflow Depth = 8.65" for 100-Year event

Inflow = 2.31 cfs @ 12.07 hrs, Volume= 8,025 cf

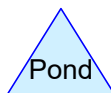
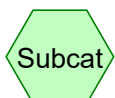
Outflow = 2.31 cfs @ 12.07 hrs, Volume= 8,025 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3



Subcat P-1

Study Point 1



2729-02_Proposed-Conditions

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,034	39	>75% Grass cover, Good, HSG A (P-1)
335	98	Paved parking, HSG A (P-1)
9,764	98	Roofs, HSG A (P-1)
11,134	93	TOTAL AREA

2729-02_Proposed-Conditions

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Page 3

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
11,134	HSG A	P-1
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
11,134		TOTAL AREA

2729-02_Proposed-Conditions

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Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
1,034	0	0	0	0	1,034	>75% Grass cover, Good	P-1
335	0	0	0	0	335	Paved parking	P-1
9,764	0	0	0	0	9,764	Roofs	P-1
11,134	0	0	0	0	11,134	TOTAL AREA	

2729-02_Proposed-Conditions

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Type III 24-hr 2-Year Rainfall=3.23"

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Page 5

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP-1: Subcat P-1

Runoff Area=11,134 sf 90.71% Impervious Runoff Depth=2.47"

Tc=5.0 min CN=93 Runoff=0.74 cfs 2,296 cf

Reach SP1: Study Point 1

Inflow=0.74 cfs 2,296 cf

Outflow=0.74 cfs 2,296 cf

Total Runoff Area = 11,134 sf Runoff Volume = 2,296 cf Average Runoff Depth = 2.47"
9.29% Pervious = 1,034 sf 90.71% Impervious = 10,100 sf

2729-02_Proposed-Conditions

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Type III 24-hr 2-Year Rainfall=3.23"

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Summary for Subcatchment P-1: Subcat P-1

Runoff = 0.74 cfs @ 12.07 hrs, Volume= 2,296 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
9,764	98	Roofs, HSG A
1,034	39	>75% Grass cover, Good, HSG A
335	98	Paved parking, HSG A
11,134	93	Weighted Average
1,034		9.29% Pervious Area
10,100		90.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

2729-02_Proposed-Conditions

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Type III 24-hr 2-Year Rainfall=3.23"

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Page 7**Summary for Reach SP1: Study Point 1**

Inflow Area = 11,134 sf, 90.71% Impervious, Inflow Depth = 2.47" for 2-Year event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 2,296 cf
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 2,296 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

2729-02_Proposed-Conditions

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Type III 24-hr 10-Year Rainfall=4.90"

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Page 8

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP-1: Subcat P-1

Runoff Area=11,134 sf 90.71% Impervious Runoff Depth=4.10"

Tc=5.0 min CN=93 Runoff=1.20 cfs 3,804 cf

Reach SP1: Study Point 1

Inflow=1.20 cfs 3,804 cf

Outflow=1.20 cfs 3,804 cf

Total Runoff Area = 11,134 sf Runoff Volume = 3,804 cf Average Runoff Depth = 4.10"
9.29% Pervious = 1,034 sf 90.71% Impervious = 10,100 sf

2729-02_Proposed-Conditions

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment P-1: Subcat P-1

Runoff = 1.20 cfs @ 12.07 hrs, Volume= 3,804 cf, Depth= 4.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
9,764	98	Roofs, HSG A
1,034	39	>75% Grass cover, Good, HSG A
335	98	Paved parking, HSG A
11,134	93	Weighted Average
1,034		9.29% Pervious Area
10,100		90.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Reach SP1: Study Point 1

Inflow Area = 11,134 sf, 90.71% Impervious, Inflow Depth = 4.10" for 10-Year event
Inflow = 1.20 cfs @ 12.07 hrs, Volume= 3,804 cf
Outflow = 1.20 cfs @ 12.07 hrs, Volume= 3,804 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

2729-02_Proposed-Conditions

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Type III 24-hr 100-Year Rainfall=8.89"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP-1: Subcat P-1

Runoff Area=11,134 sf 90.71% Impervious Runoff Depth=8.05"

Tc=5.0 min CN=93 Runoff=2.26 cfs 7,466 cf

Reach SP1: Study Point 1

Inflow=2.26 cfs 7,466 cf

Outflow=2.26 cfs 7,466 cf

Total Runoff Area = 11,134 sf Runoff Volume = 7,466 cf Average Runoff Depth = 8.05"
9.29% Pervious = 1,034 sf 90.71% Impervious = 10,100 sf

2729-02_Proposed-Conditions

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Type III 24-hr 100-Year Rainfall=8.89"

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Summary for Subcatchment P-1: Subcat P-1

Runoff = 2.26 cfs @ 12.07 hrs, Volume= 7,466 cf, Depth= 8.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
9,764	98	Roofs, HSG A
1,034	39	>75% Grass cover, Good, HSG A
335	98	Paved parking, HSG A
11,134	93	Weighted Average
1,034		9.29% Pervious Area
10,100		90.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

2729-02_Proposed-Conditions

Prepared by Allen & Major Associates Inc.

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Type III 24-hr 100-Year Rainfall=8.89"

Printed 4/23/2021

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Summary for Reach SP1: Study Point 1

Inflow Area = 11,134 sf, 90.71% Impervious, Inflow Depth = 8.05" for 100-Year event

Inflow = 2.26 cfs @ 12.07 hrs, Volume= 7,466 cf

Outflow = 2.26 cfs @ 12.07 hrs, Volume= 7,466 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	Massachusetts
Location	
Longitude	71.142 degrees West
Latitude	42.405 degrees North
Elevation	0 feet
Date/Time	Fri, 28 Aug 2020 14:10:00 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.70	0.87	1.10	1yr	0.75	1.04	1.28	1.63	2.09	2.69	2.94	1yr	2.38	2.83	3.29	3.98	4.65	1yr
2yr	0.35	0.54	0.67	0.88	1.11	1.40	2yr	0.96	1.28	1.62	2.04	2.57	3.23	3.59	2yr	2.86	3.45	3.95	4.70	5.35	2yr
5yr	0.42	0.65	0.81	1.09	1.39	1.77	5yr	1.20	1.61	2.06	2.60	3.26	4.09	4.56	5yr	3.62	4.38	5.00	5.97	6.69	5yr
10yr	0.47	0.74	0.93	1.27	1.65	2.12	10yr	1.42	1.91	2.47	3.12	3.92	4.90	5.47	10yr	4.33	5.26	5.99	7.15	7.92	10yr
25yr	0.56	0.89	1.13	1.56	2.06	2.67	25yr	1.78	2.40	3.13	3.96	4.98	6.20	6.96	25yr	5.49	6.69	7.59	9.10	9.91	25yr
50yr	0.63	1.01	1.30	1.82	2.45	3.21	50yr	2.12	2.86	3.77	4.78	5.98	7.43	8.36	50yr	6.57	8.03	9.08	10.92	11.75	50yr
100yr	0.73	1.18	1.52	2.14	2.92	3.84	100yr	2.52	3.40	4.52	5.73	7.17	8.89	10.04	100yr	7.87	9.65	10.88	13.10	13.94	100yr
200yr	0.83	1.36	1.76	2.52	3.47	4.60	200yr	2.99	4.05	5.43	6.89	8.61	10.65	12.07	200yr	9.43	11.60	13.03	15.73	16.54	200yr
500yr	1.01	1.65	2.16	3.13	4.37	5.83	500yr	3.77	5.11	6.90	8.77	10.97	13.54	15.40	500yr	11.98	14.81	16.55	20.05	20.75	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.38	0.46	0.62	0.76	0.85	1yr	0.66	0.83	1.15	1.44	1.78	2.44	2.50	1yr	2.16	2.41	2.93	3.53	4.05	1yr
2yr	0.33	0.51	0.63	0.85	1.05	1.26	2yr	0.91	1.23	1.45	1.91	2.48	3.13	3.47	2yr	2.77	3.33	3.82	4.53	5.18	2yr
5yr	0.39	0.60	0.75	1.02	1.30	1.51	5yr	1.12	1.47	1.73	2.24	2.89	3.77	4.18	5yr	3.34	4.02	4.59	5.47	6.17	5yr
10yr	0.44	0.67	0.83	1.16	1.50	1.73	10yr	1.29	1.69	1.95	2.53	3.24	4.35	4.83	10yr	3.85	4.65	5.27	6.29	7.01	10yr

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
25yr	0.50	0.77	0.95	1.36	1.79	2.05	25yr	1.54	2.00	2.31	2.96	3.78	5.23	5.82	25yr	4.63	5.60	6.31	7.52	8.29	25yr
50yr	0.56	0.85	1.06	1.52	2.05	2.35	50yr	1.77	2.30	2.61	3.34	4.24	5.99	6.70	50yr	5.30	6.44	7.22	8.60	9.39	50yr
100yr	0.63	0.95	1.18	1.71	2.35	2.68	100yr	2.03	2.62	2.96	3.62	4.77	6.89	7.70	100yr	6.10	7.41	8.27	9.79	10.65	100yr
200yr	0.70	1.06	1.34	1.94	2.71	3.06	200yr	2.34	2.99	3.36	4.05	5.37	7.91	8.86	200yr	7.00	8.52	9.46	11.12	12.03	200yr
500yr	0.82	1.23	1.58	2.29	3.26	3.65	500yr	2.81	3.57	3.97	4.70	6.29	9.50	10.64	500yr	8.41	10.23	11.30	13.12	14.12	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.48	0.58	0.79	0.97	1.13	1yr	0.83	1.11	1.32	1.77	2.25	2.86	3.17	1yr	2.53	3.05	3.51	4.29	5.03	1yr
2yr	0.36	0.56	0.69	0.94	1.15	1.36	2yr	1.00	1.33	1.57	2.08	2.68	3.35	3.74	2yr	2.97	3.59	4.11	4.89	5.55	2yr
5yr	0.45	0.70	0.86	1.19	1.51	1.79	5yr	1.30	1.75	2.05	2.66	3.39	4.44	5.00	5yr	3.93	4.81	5.43	6.48	7.21	5yr
10yr	0.55	0.84	1.05	1.46	1.89	2.20	10yr	1.63	2.15	2.55	3.22	4.07	5.51	6.25	10yr	4.88	6.01	6.72	8.04	8.83	10yr
25yr	0.71	1.08	1.35	1.92	2.53	2.90	25yr	2.19	2.83	3.39	4.16	5.17	7.32	8.42	25yr	6.48	8.09	8.92	10.74	11.56	25yr
50yr	0.86	1.31	1.64	2.35	3.17	3.59	50yr	2.73	3.51	4.21	5.05	6.22	9.08	10.54	50yr	8.04	10.14	11.04	13.40	14.18	50yr
100yr	1.06	1.60	2.00	2.89	3.96	4.42	100yr	3.42	4.32	5.22	6.37	7.47	11.28	13.22	100yr	9.98	12.71	13.68	16.75	17.43	100yr
200yr	1.29	1.94	2.45	3.55	4.95	5.46	200yr	4.27	5.34	6.49	7.78	8.96	14.02	16.60	200yr	12.41	15.96	16.97	20.95	21.46	200yr
500yr	1.68	2.50	3.21	4.67	6.63	7.20	500yr	5.72	7.04	8.66	10.14	11.41	18.71	22.44	500yr	16.56	21.58	22.57	28.20	28.29	500yr



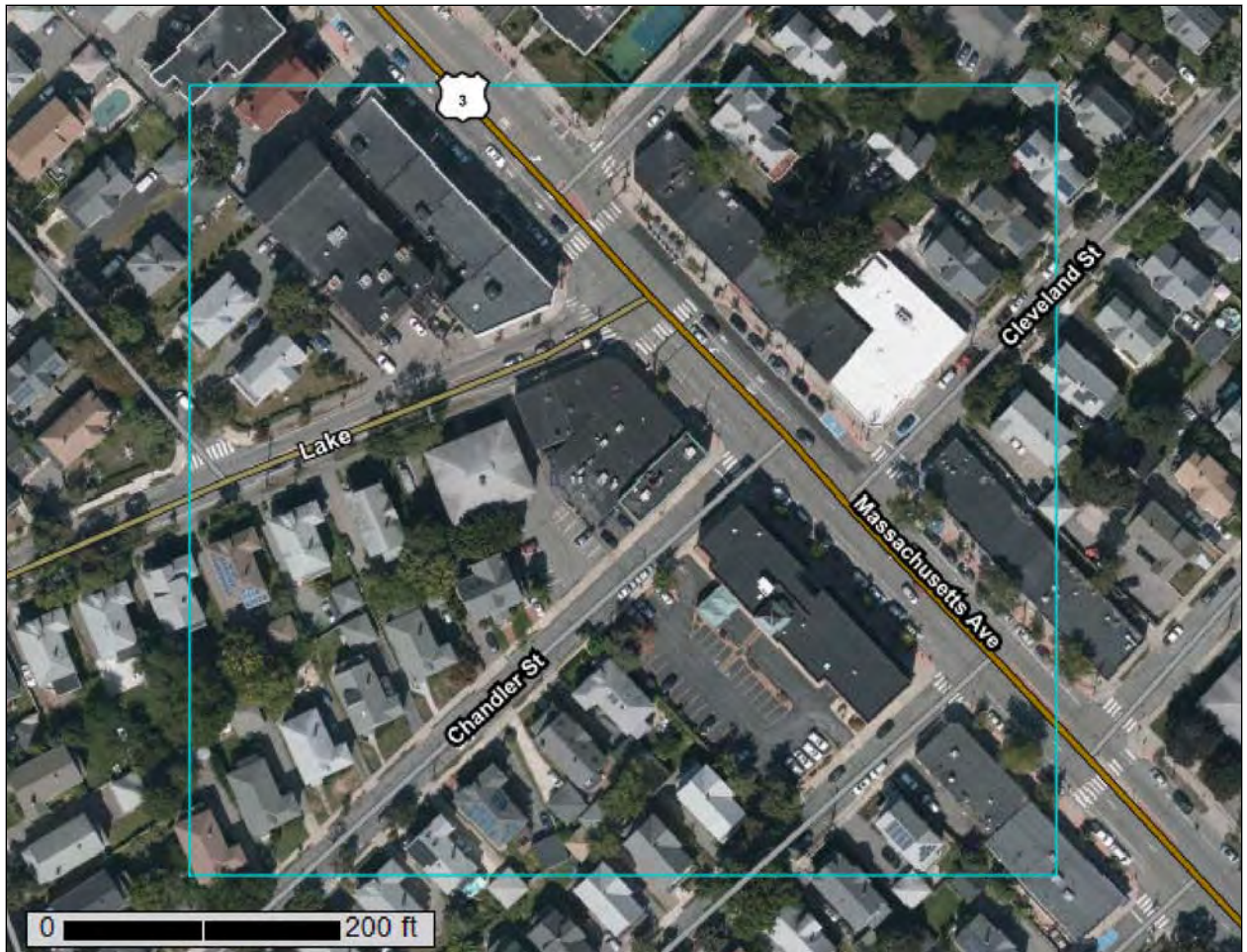
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Middlesex County, Massachusetts**



August 28, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,480 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 11, 2019—Oct 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
602	Urban land	6.6	79.8%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	1.7	20.2%
Totals for Area of Interest		8.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Middlesex County, Massachusetts

602—Urban land

Map Unit Setting

National map unit symbol: 9950
Elevation: 0 to 3,000 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Excavated and filled land

Minor Components

Rock outcrop

Percent of map unit: 5 percent
Landform: Ledges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Concave

Udorthents, wet substratum

Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents, loamy

Percent of map unit: 5 percent
Hydric soil rating: No

626B—Merrimac-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyr9
Elevation: 0 to 820 feet
Mean annual precipitation: 36 to 71 inches

Custom Soil Resource Report

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Merrimac and similar soils: 45 percent

Urban land: 40 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Eskers, moraines, outwash terraces, outwash plains, kames

Landform position (two-dimensional): Backslope, footslope, summit, shoulder

Landform position (three-dimensional): Side slope, crest, riser, tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam

Bw1 - 10 to 22 inches: fine sandy loam

Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand

2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 2 percent

Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)

Sodium adsorption ratio, maximum: 1.0

Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 0 to 8 percent

Custom Soil Resource Report

Depth to restrictive feature: 0 inches to manufactured layer

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: Unranked

Minor Components

Windsor

Percent of map unit: 5 percent

Landform: Dunes, outwash terraces, deltas, outwash plains

Landform position (three-dimensional): Tread, riser

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent

Landform: Outwash plains, terraces, deltas

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, dip

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent

Landform: Eskers, kames, deltas, outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise

Down-slope shape: Convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Saturated Hydraulic Conductivity (Ksat)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.


The numeric Ksat values have been grouped according to standard Ksat class limits.

Custom Soil Resource Report
Map—Saturated Hydraulic Conductivity (Ksat)




MAP LEGEND


Area of Interest (AOI)

 Area of Interest (AOI)


Soils


Soil Rating Polygons

 = 100.0000


 Not rated or not available


Soil Rating Lines

 = 100.0000


 Not rated or not available

Soil Rating Points


 = 100.0000


 Not rated or not available


Water Features


 Streams and Canals


Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 11, 2019—Oct 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
602	Urban land		6.6	79.8%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	100.0000	1.7	20.2%
Totals for Area of Interest			8.3	100.0%

Rating Options—Saturated Hydraulic Conductivity (Ksat)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 12

Bottom Depth: 120

Units of Measure: Inches

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Custom Soil Resource Report

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report Map—Hydrologic Soil Group



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Date(s) aerial images were photographed: Sep 11, 2019—Oct 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
602	Urban land		6.6	79.8%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	A	1.7	20.2%
Totals for Area of Interest			8.3	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Search Analytics

INVENTORY SF

89.4K +0%

Prior Period 89.4K

UNDER CONSTRUCTION SF

0 -

Prior Period 0

12 MO NET ABSORPTION SF

(7.7K) -15,120.0%

Prior Period 51

VACANCY RATE

17.3% +8.7%

Prior Period 8.6%

MARKET RENT/SF

\$30.61 -3.3%

Prior Period \$31.66

MARKET SALE PRICE/SF

\$319 -2.3%

Prior Period \$326

MARKET CAP RATE

5.6% +0%

Prior Period 5.6%

Key Metrics

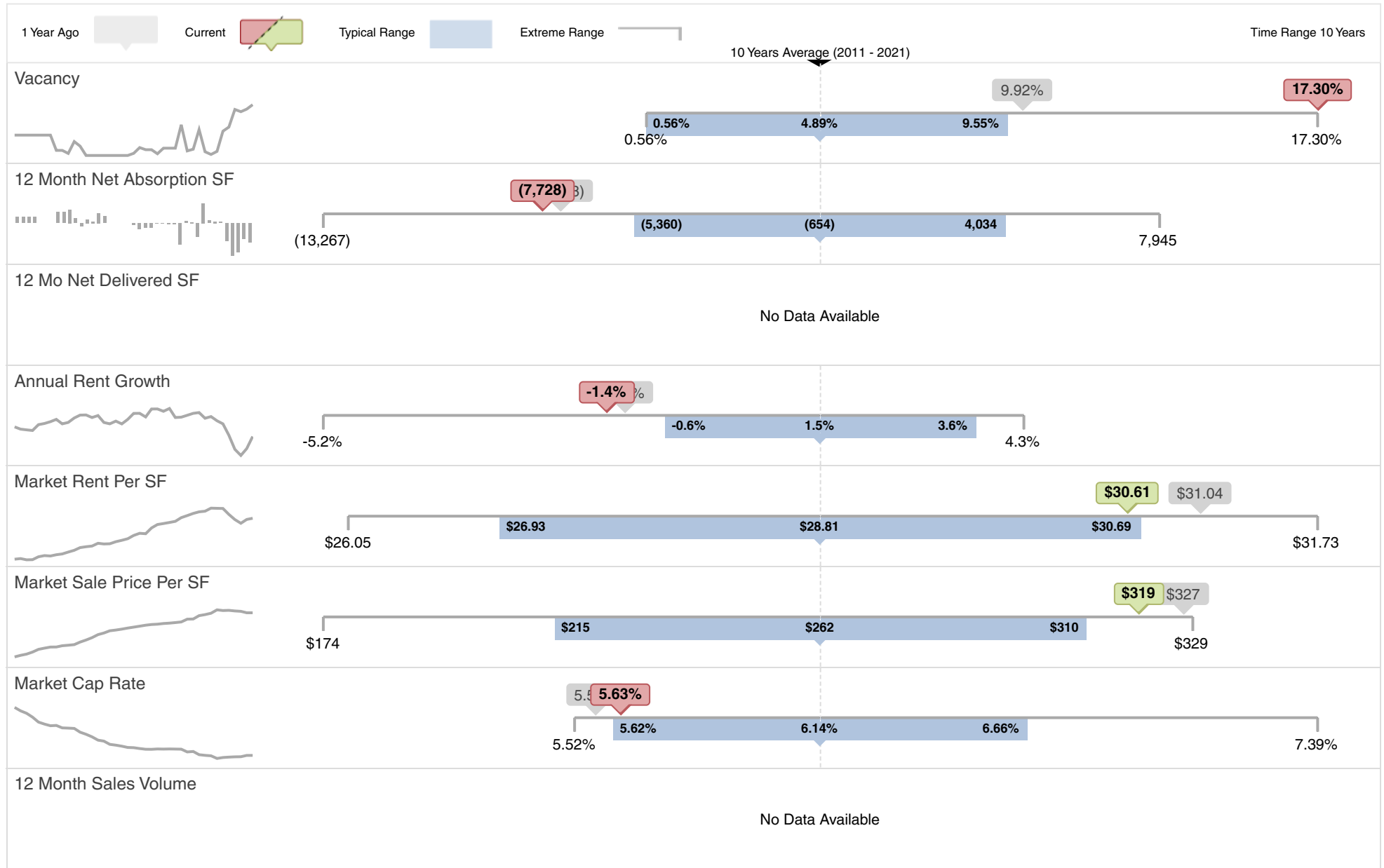
Availability	
Vacant SF	15.5K ↑
Sublet SF	658 ↓
Availability Rate	24.9% ↑
Available SF	22.2K ↑
Available Asking Rent/SF	\$31.09 ↑
Occupancy Rate	82.7% ↓
Percent Leased Rate	83.4% ↓

Inventory	
Existing Buildings	10 ↓
Under Construction Avg SF	-
12 Mo Demolished SF	0 ↓
12 Mo Occupancy % at Delivery	-
12 Mo Construction Starts SF	0 ↓
12 Mo Delivered SF	0 ↓
12 Mo Avg Delivered SF	-

Sales Past Year	
Asking Price Per SF	-
Sale to Asking Price Differential	-
Sales Volume	\$0 ↓
Properties Sold	1 ↑
Months to Sale	-
For Sale Listings	-
Total For Sale SF	-

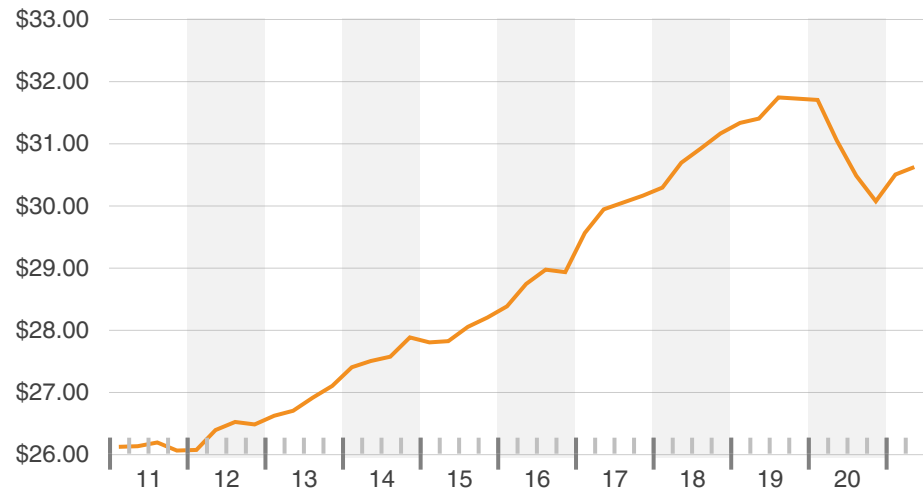
Demand	
12 Mo Net Absorp % of Inventory	-8.6% ↓
12 Mo Leased SF	7.3K ↑
Months on Market	8.8 ↑
Months to Lease	-
Months Vacant	-
24 Mo Lease Renewal Rate	31.9%
Population Growth 5 Yrs	2.3%

Key Performance Indicators



Search Analytics

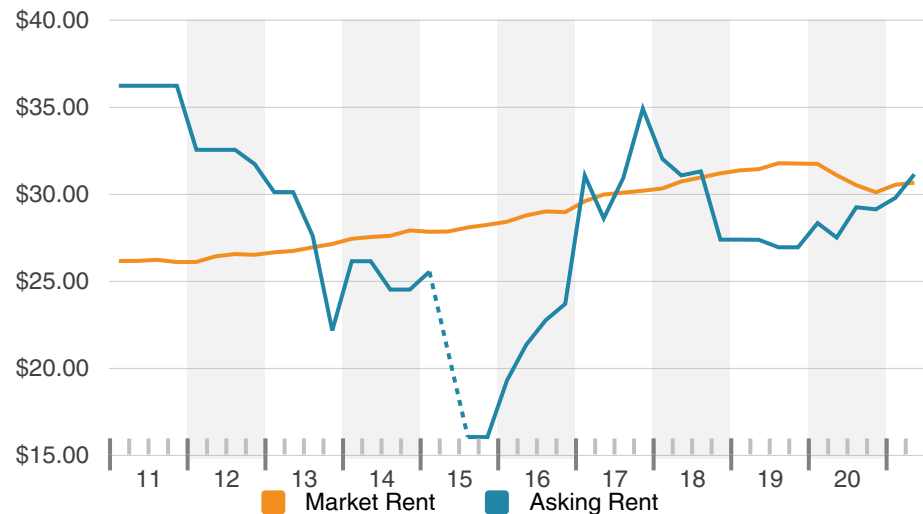
Market Rent Per SF



Market Rent Growth (YOY)



Market Rent & Asking Rent Per SF

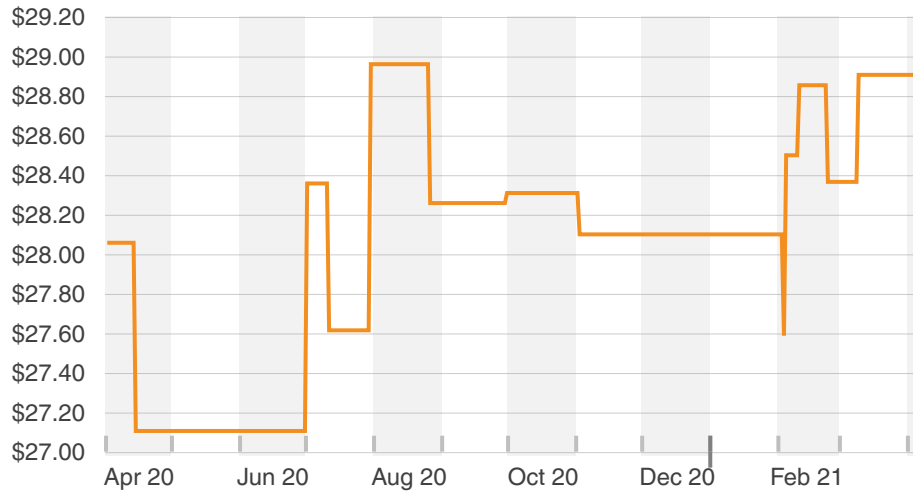


Asking Rent Per SF

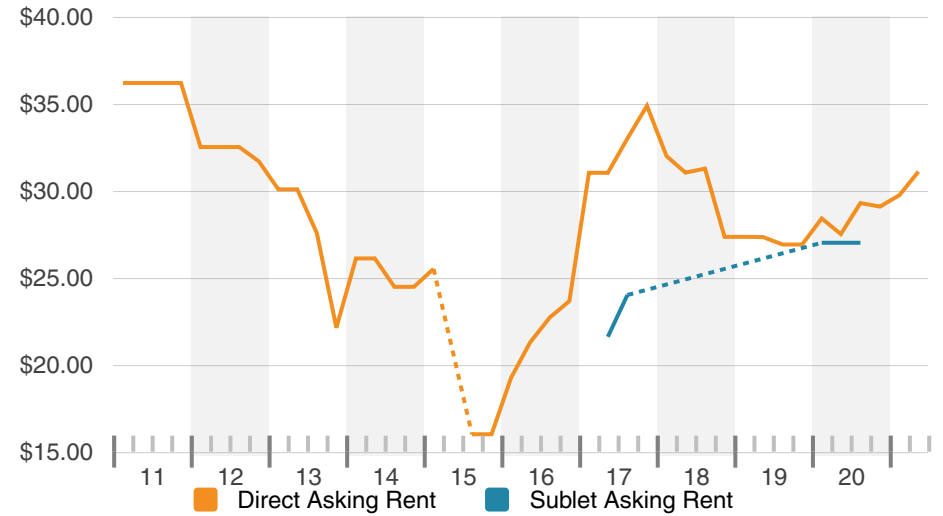


Search Analytics

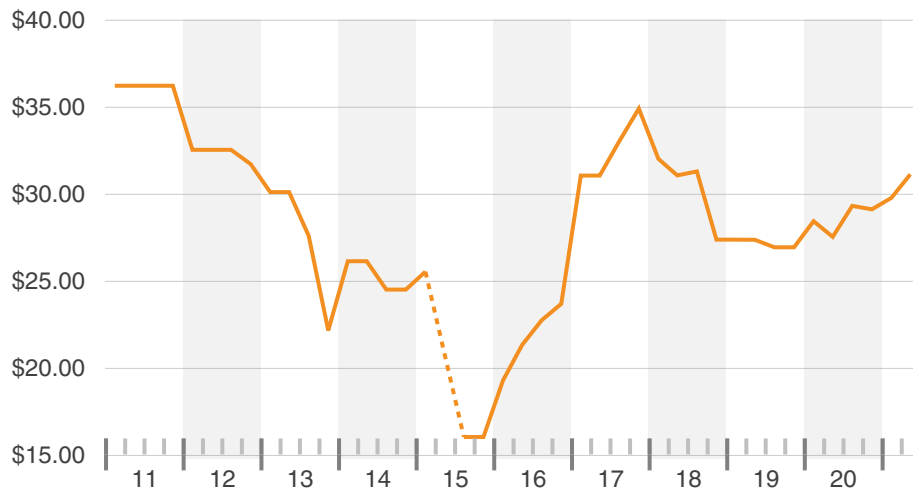
Daily Asking Rent Per SF



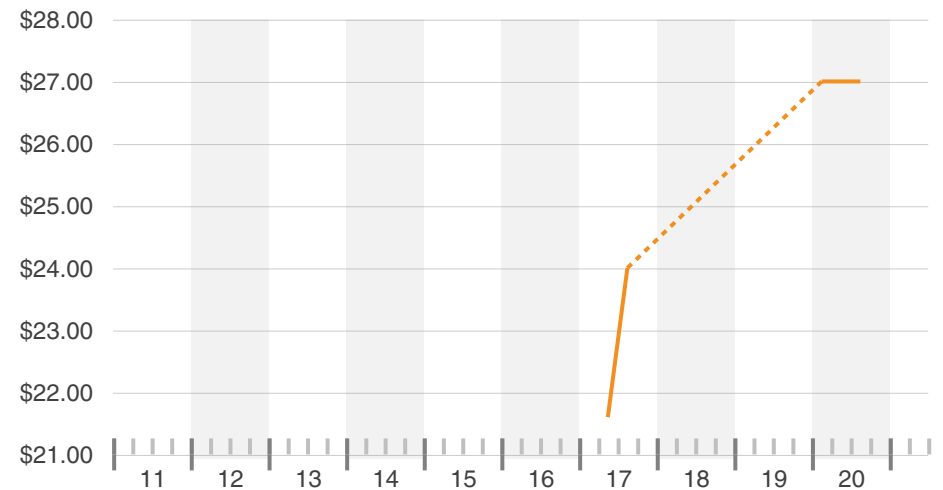
Direct & Sublet Rent Per SF



Direct Rent Per SF

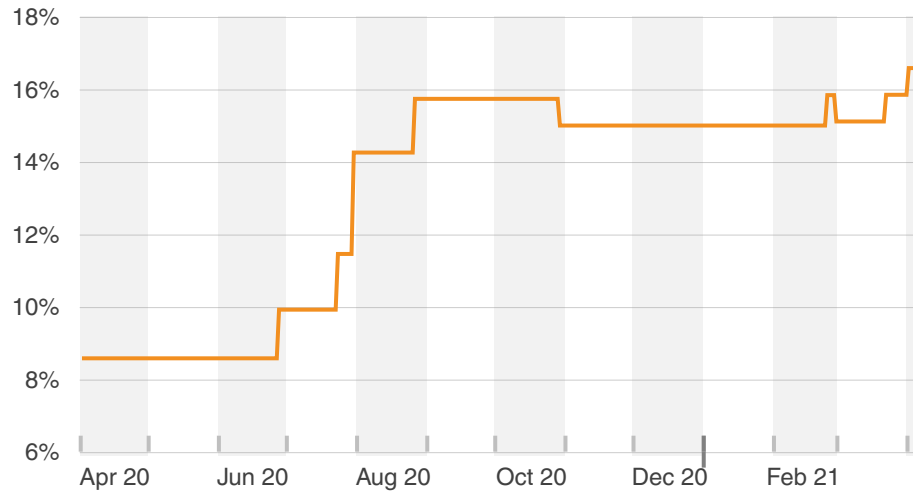


Sublet Rent Per SF



Search Analytics

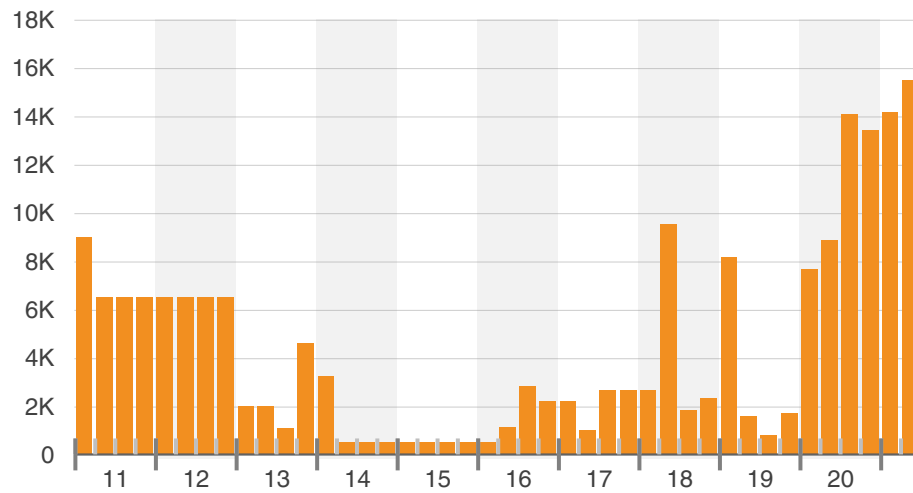
Daily Vacancy Rate



Vacancy Rate



Vacant SF

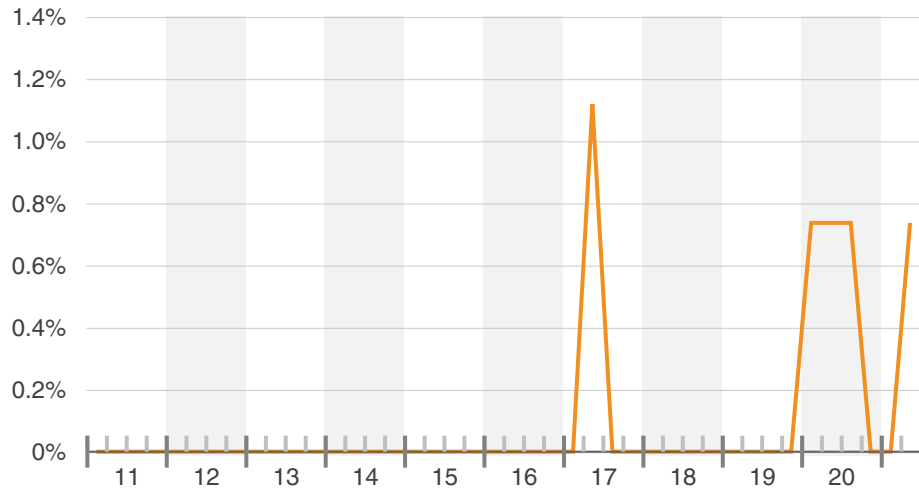


Occupancy Rate



Search Analytics

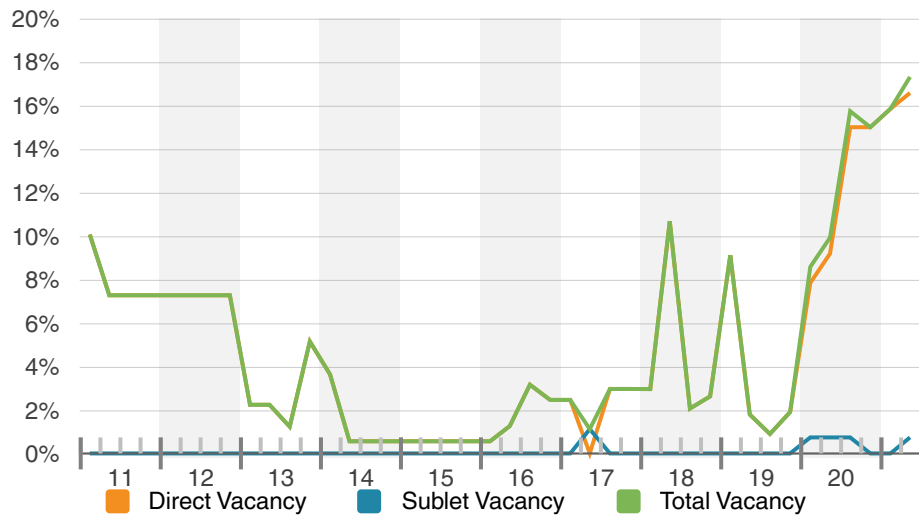
Sublet Vacancy Rate



Direct Vacancy Rate



Direct, Sublet & Total Vacancy Rate

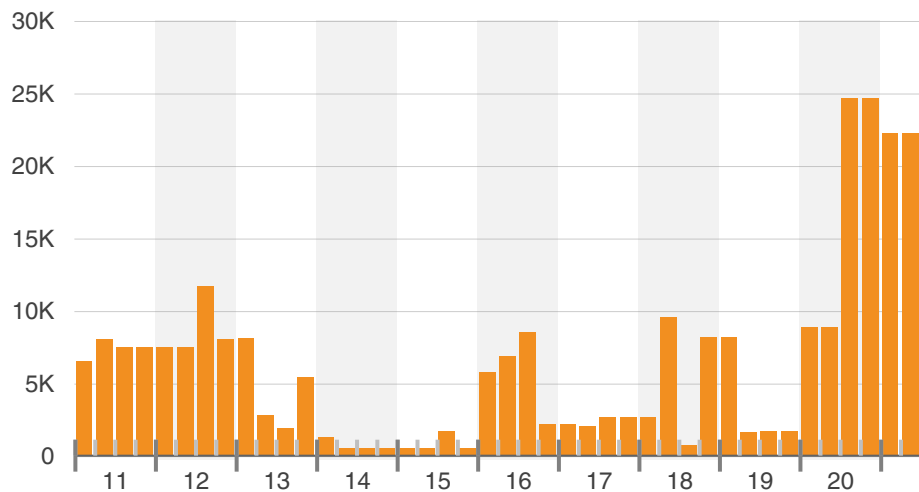


Availability Rate

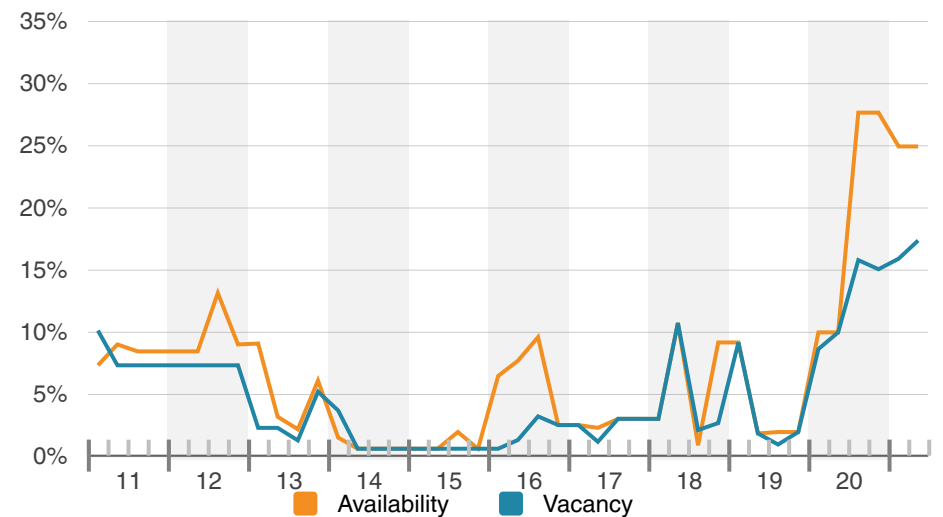


Search Analytics

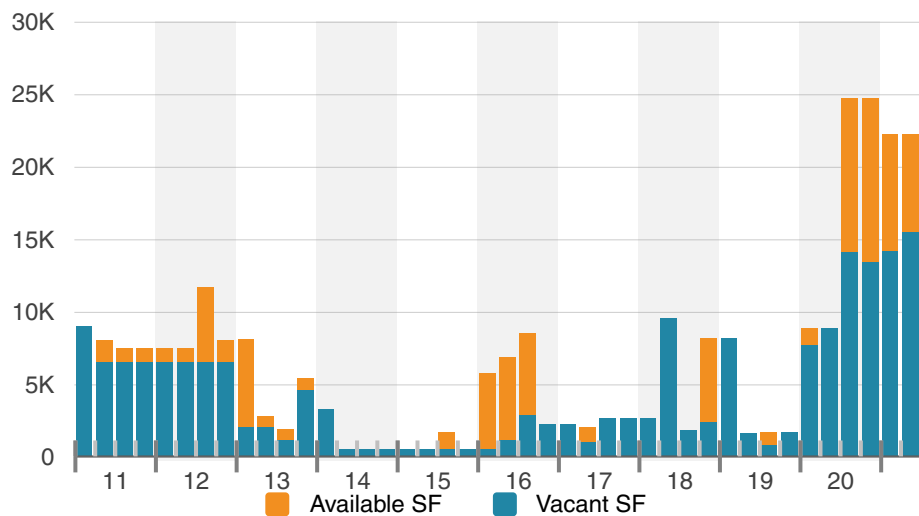
Available SF



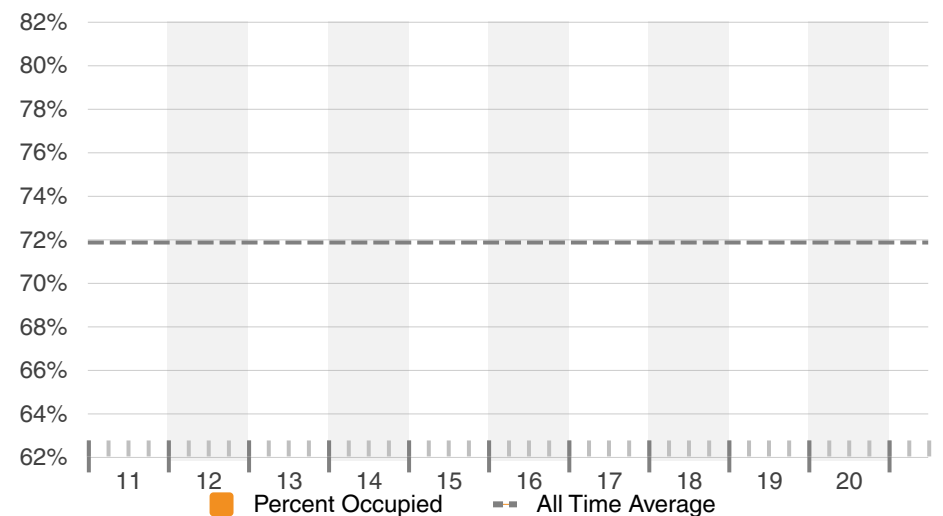
Availability & Vacancy Rate



Available & Vacant SF

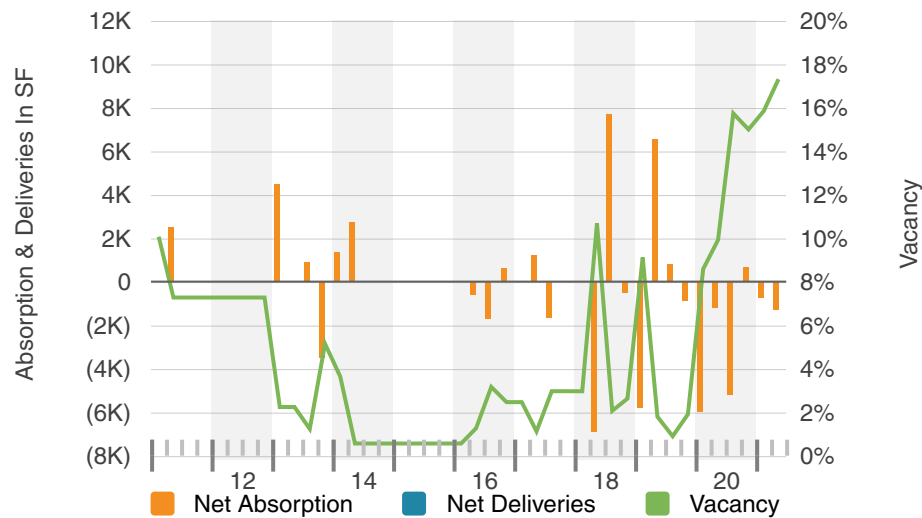


Occupancy At Delivery

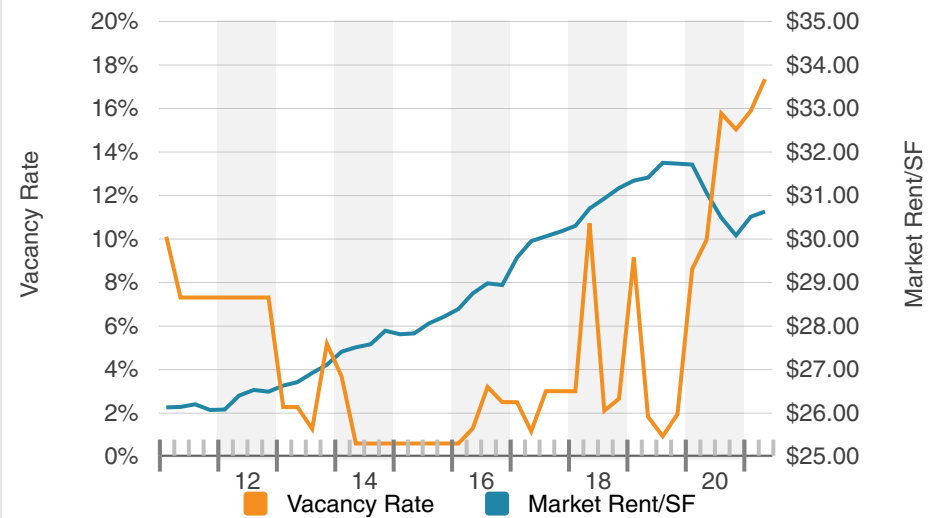


Search Analytics

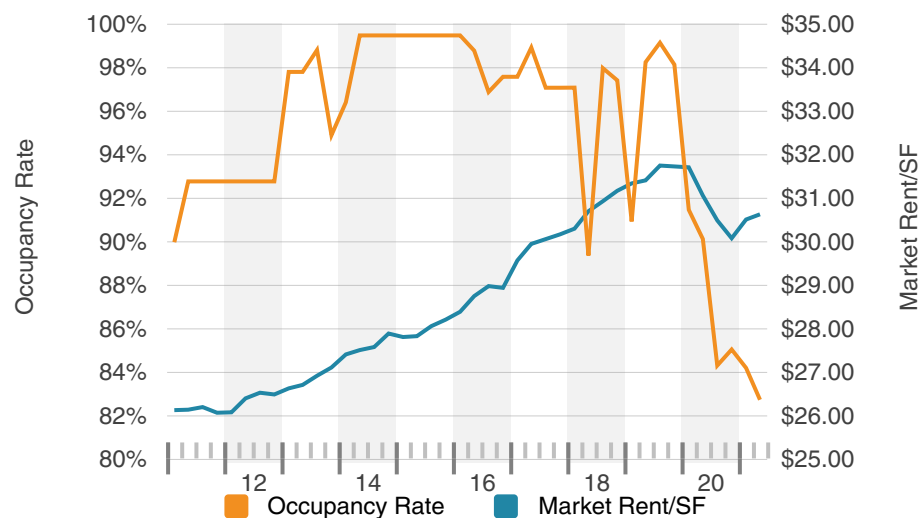
Net Absorption, Net Deliveries & Vacancy



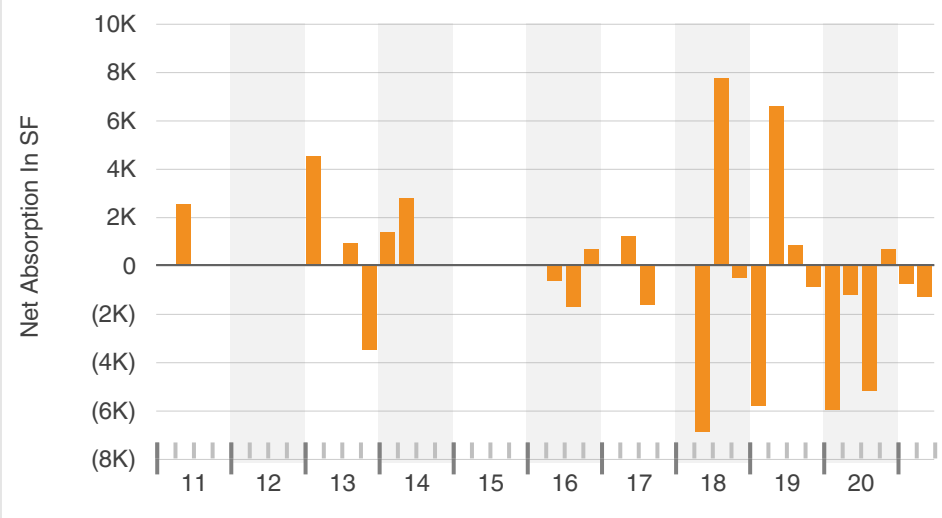
Vacancy & Market Rent Per SF



Occupancy & Market Rent Per SF

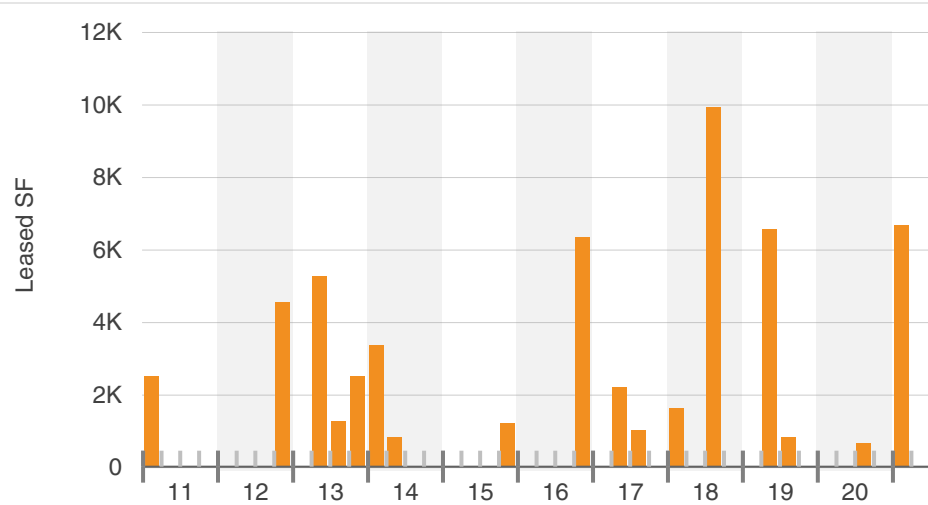


Net Absorption

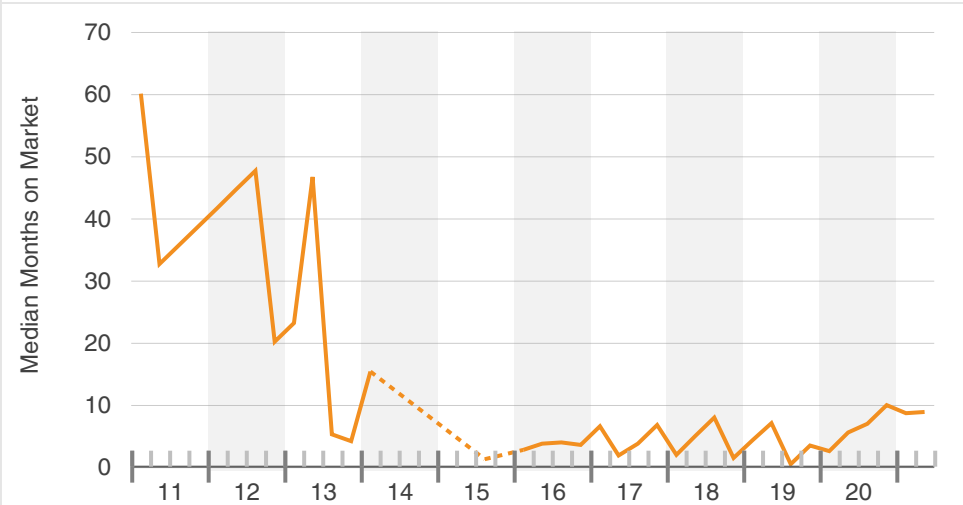


Search Analytics

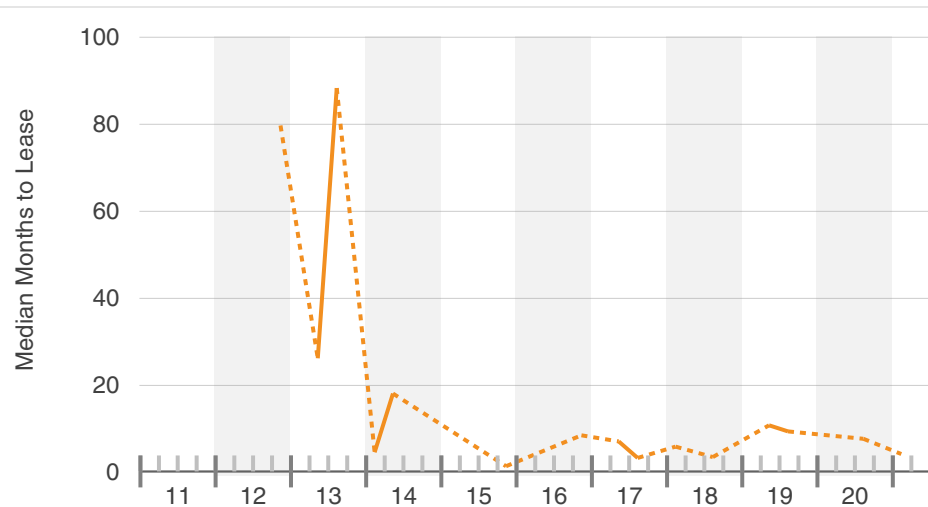
Leasing Activity



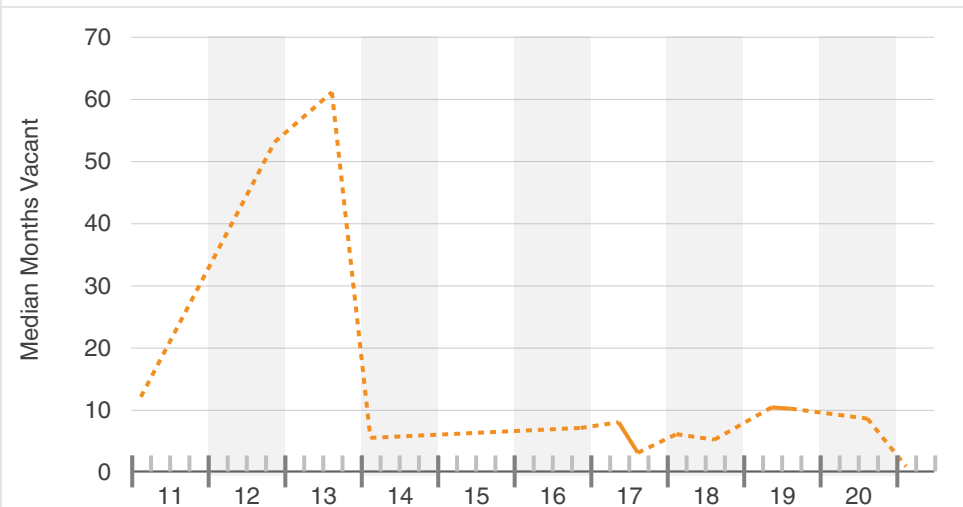
Months On Market



Months To Lease

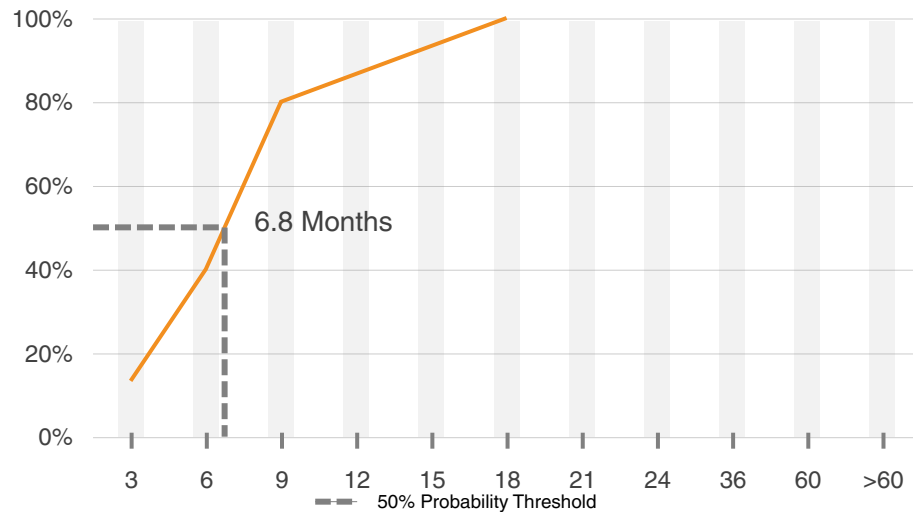


Months Vacant



Search Analytics

Probability Of Leasing In Months



Construction Starts

No Data Available



No data available for the past 10 years

Under Construction

No Data Available



No data available for the past 10 years

Deliveries & Demolitions

No Data Available



No data available for the past 10 years

Deliveries

No Data Available



No data available for the past 10 years

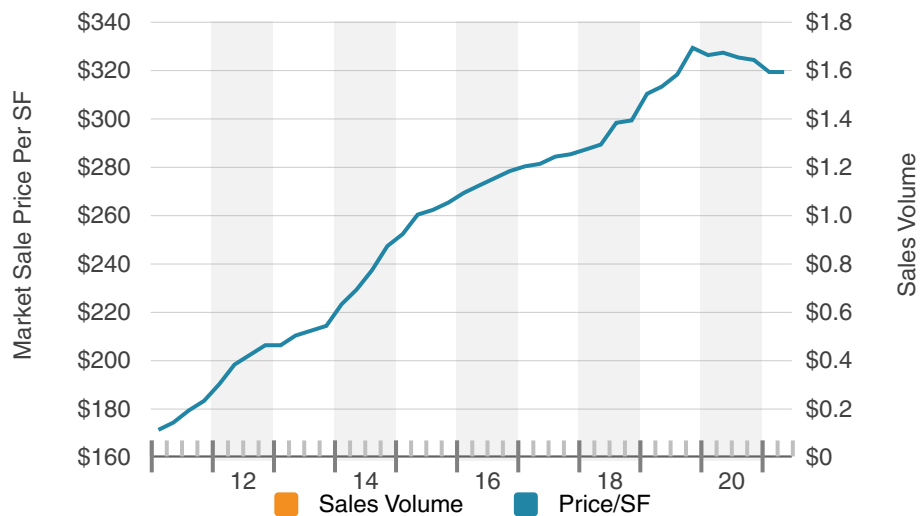
Demolitions

No Data Available

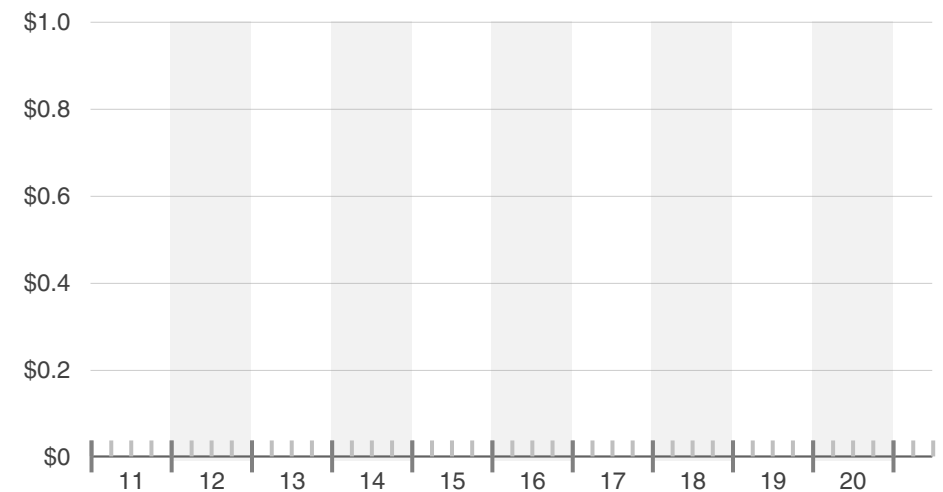


No data available for the past 10 years

Sales Volume & Market Sale Price Per SF



Sales Volume



Sales Volume By Transaction Type

No Data Available



No data available for the past 10 years

Sale Price Per SF

No Data Available



No data available for the past 10 years

Sale Price Per SF By Transaction Type

No Data Available



No data available for the past 10 years

Sale Price Per SF By Location Type

No Data Available



No data available for the past 10 years

Cap Rate

No Data Available



No data available for the past 10 years

Cap Rate By Transaction Type

No Data Available



No data available for the past 10 years

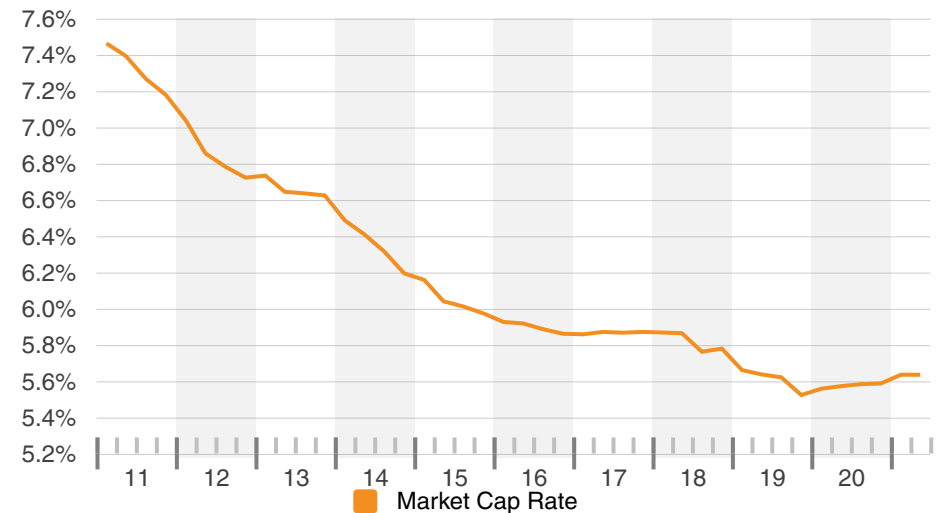
Cap Rate By Location Type

No Data Available

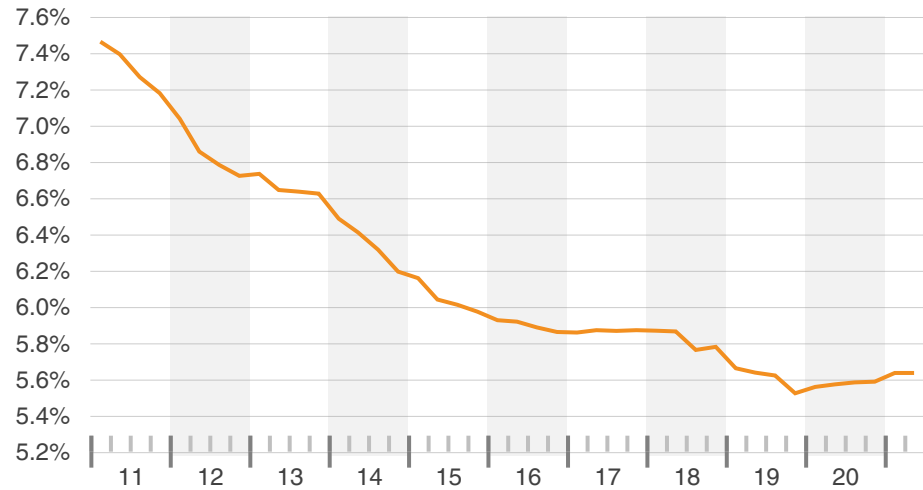


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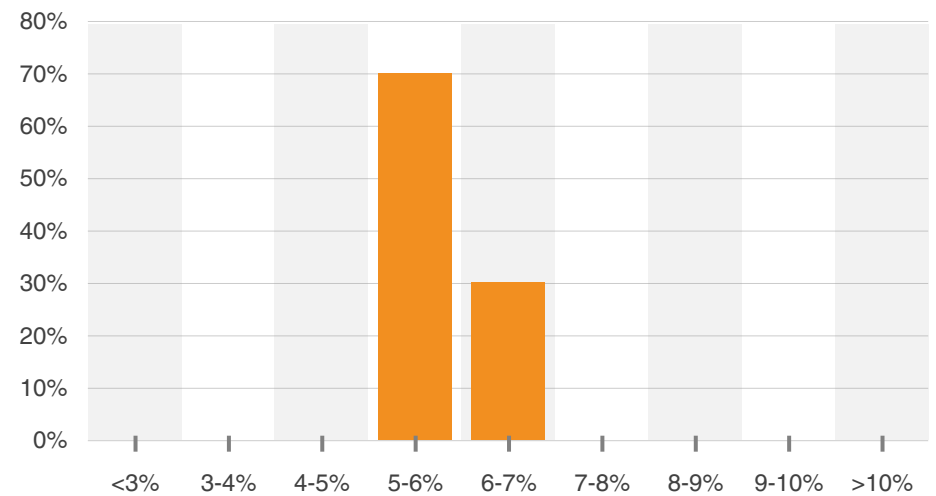
Market Cap Rate & Transaction Cap Rate



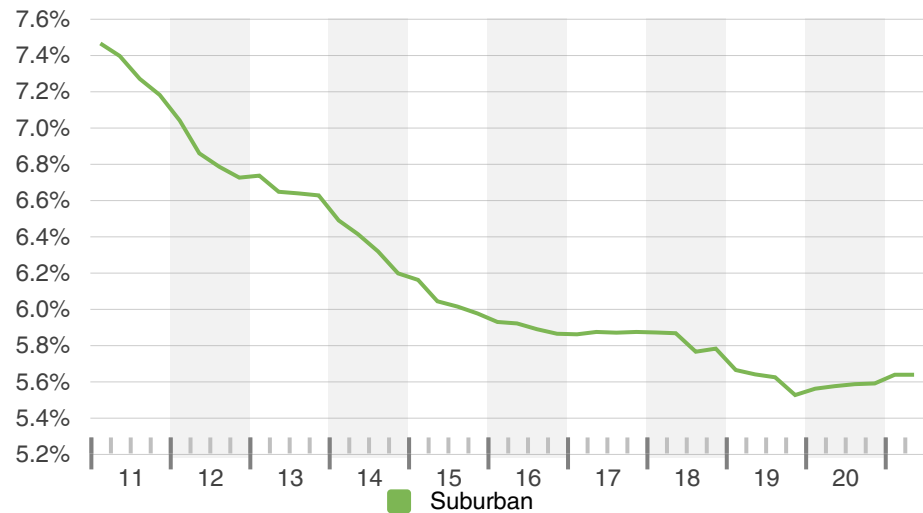
Market Cap Rate



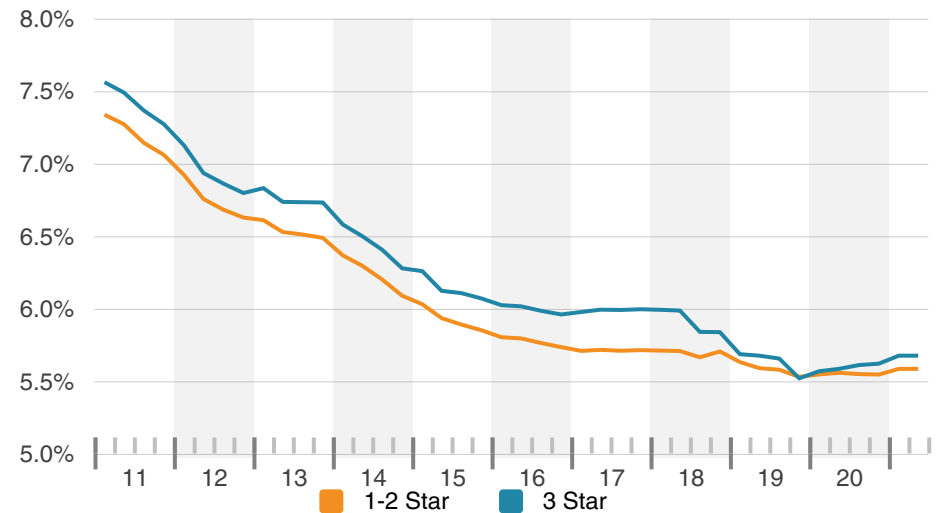
Market Cap Rate Distribution



Market Cap Rate By Location Type

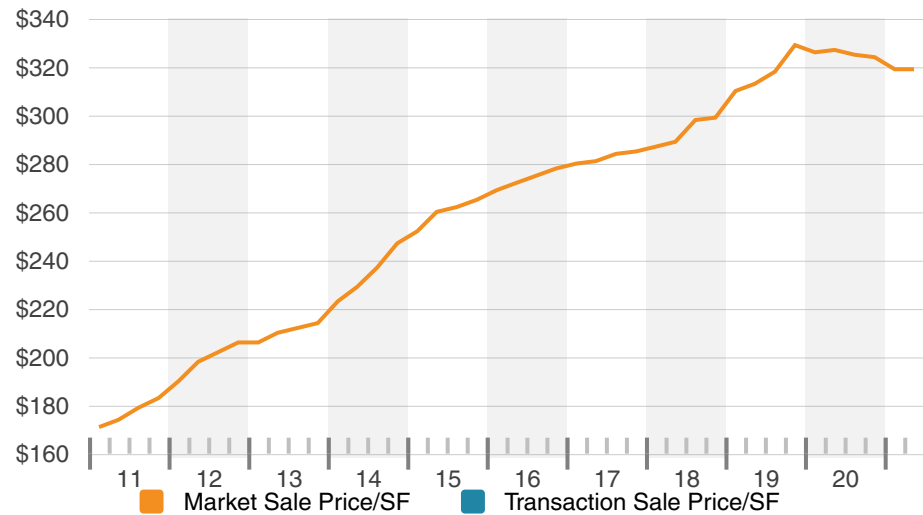


Market Cap Rate By Star Rating

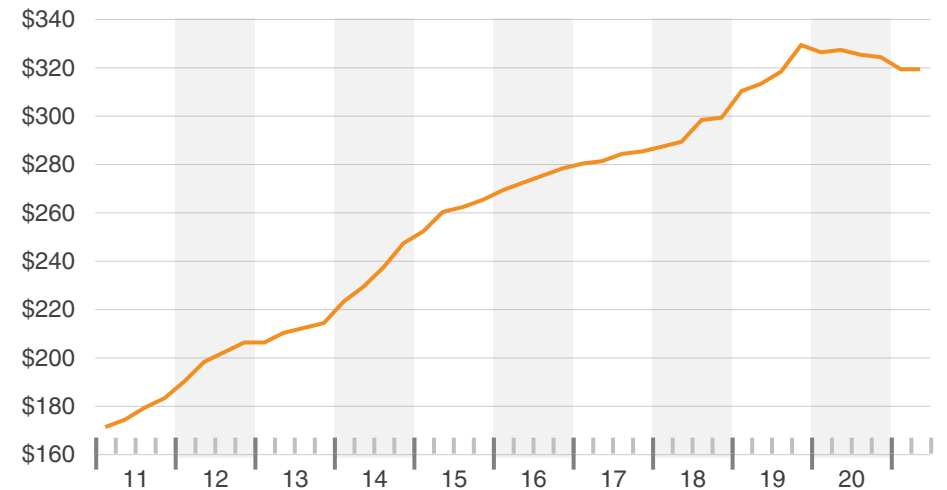


Search Analytics

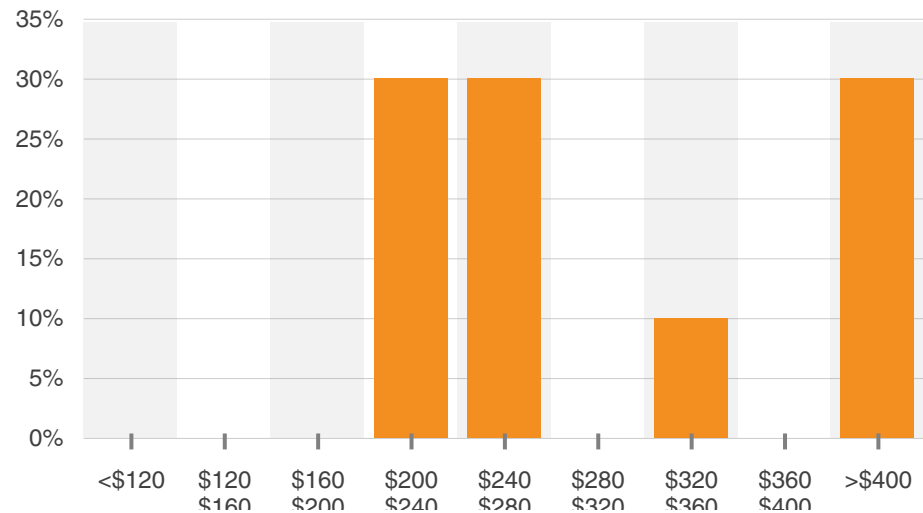
Market Sale Price & Transaction Sale Price Per SF



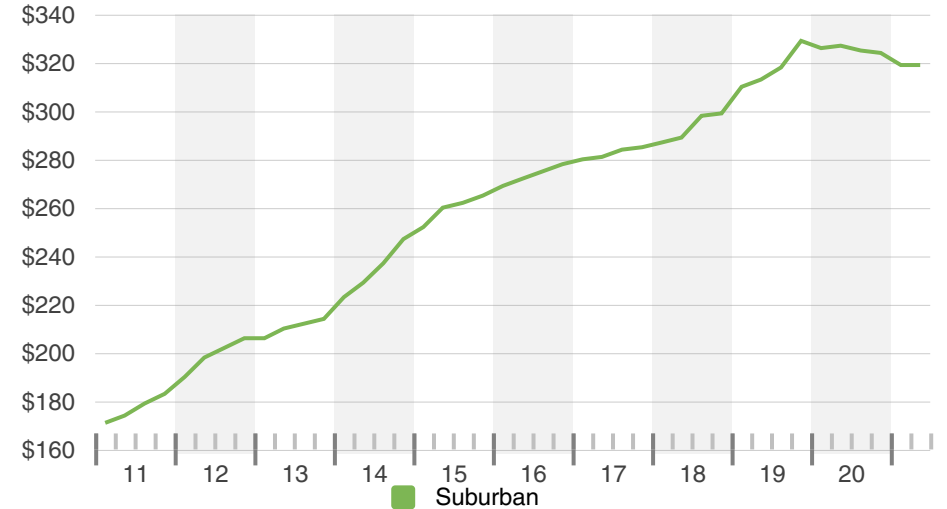
Market Sale Price Per SF



Market Sale Price Per SF Distribution

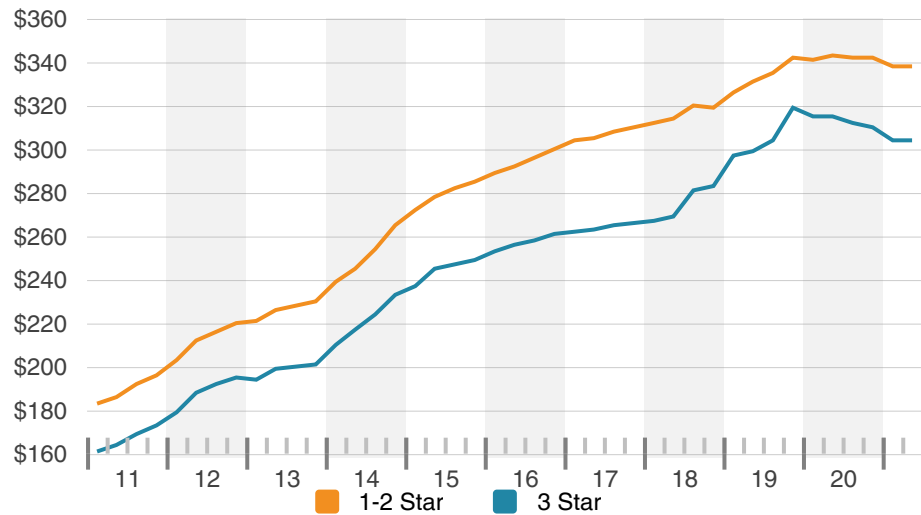


Market Sale Price Per SF By Location Type



Search Analytics

Market Sale Price Per SF By Star Rating



Sale To Asking Price Differential

No Data Available



No data available for the past 10 years

Probability Of Selling In Months

No Data Available



No data available for the current selection

--- 50% Probability Threshold

For Sale Total Listings

No Data Available



No data available for the past 10 years

For Sale Total SF

No Data Available



No data available for the past 10 years

For Sale Asking Price Per SF

No Data Available



No data available for the past 10 years

Top Buyers

No Data Available



No data available for the current selection

Top Sellers

No Data Available



No data available for the current selection

Top Buyer Brokers

No Data Available



No data available for the current selection

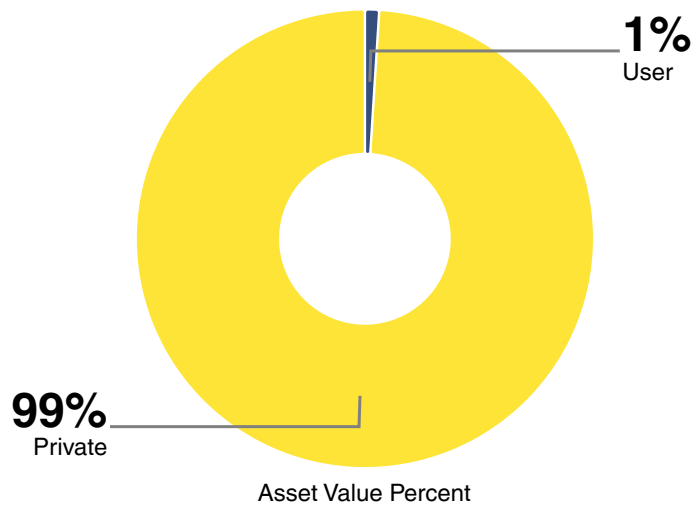
Top Seller Brokers

No Data Available



No data available for the current selection

Asset Value By Owner Type



Sales By Buyer Type

No Data Available



No data available for the current selection

Sales By Seller Type

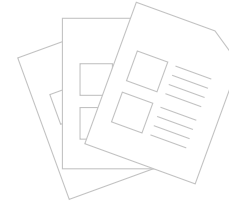
No Data Available



No data available for the current selection

Sales Volume By Buyer Type

No Data Available



No data available for the past 10 years

Sales Volume By Seller Type

No Data Available



No data available for the past 10 years

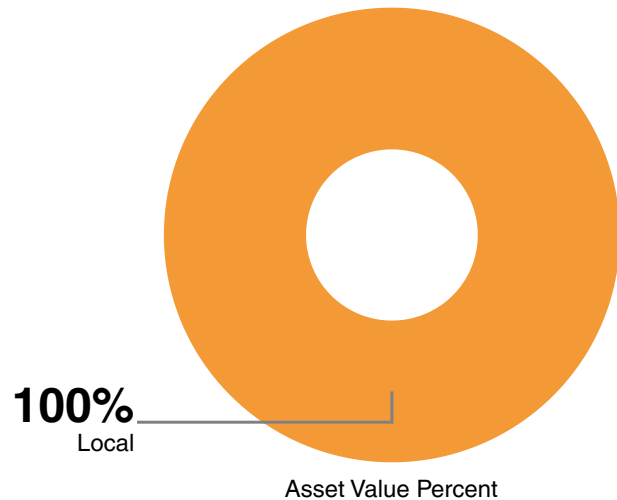
Net Buying & Selling By Owner Type

No Data Available



No data available for the past 10 years

Asset Value By Owner Origin



Sales Volume By Buyer Origin

No Data Available



No data available for the current selection

Sales Volume By Seller Origin

No Data Available



No data available for the current selection

Average Price Per SF By Buyer Origin

No Data Available



No data available for the past 10 years

Average Cap Rate By Buyer Origin

No Data Available



No data available for the past 10 years

Report Criteria

- 11 Properties / 16 Spaces
- City: Arlington, MA
- Listing Type: For Lease
- Space Use: Retail